A Collaborative and Co-ordinated Approach to Success – How can the rail industry learn from the recent military campaigns (2001 – 2015) for the development of Strategic Resilience Management Leadership?

A Collaborative and Co-ordinated Approach to Success – How can the rail industry learn from the recent military campaigns (2001 – 2015) for the development of Strategic Resilience Management Leadership?

Aaron Gracey BA PGCE MA MSc

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Signature:

Date: 15 May 2020.

ABSTRACT

According to business and military researchers, the world within which today's organisations operate is more technologically advanced than a decade ago, with globalisation making businesses and supply chains more interdependent. The impacts of disruptive events are increasingly felt across operational, tactical and strategic operating levels and in some cases, they can cause national and international crises. Simultaneously, organisations are being forced to diversify and innovate to maintain their share of global or local markets, thus importing risk into the daily operating model. These organisations maintain the foundation of society by building the economy; they provide employment, wealth generation, material goods, services and a spirit of community. If a large organisation collapses, invariably the community within which it operates will also feel the impact.

It is impossible for any organisation to build a framework to protect it from all disruptive events. Such capability is not possible, no matter the size or resources of the organisation and, therefore, it is also impossible to plan for every eventuality. The skill is having the ability to develop the capability to adaptively think, understand the root causes of the disruptive event and dynamically plan accordingly. This allows the utilisation of the resources, finances and time available to minimise the impact and maximise the opportunity as competitors struggle to recover. This is the concept of Organisational Resilience; delivering a holistic approach to enable an organisation to dynamically respond, recover and grow in the face of disruption. Organisations with a higher level of internal resilience are better poised to mobilise resources, allocate personnel and prioritise key functions, with leadership teams unafraid to make difficult decisions based on intelligence and evidence-based analysis. However, organisations also struggle to fully understand, appreciate and demonstrate the need for resilience until faced with the disruptive event. There is still a limited understanding of how a resilience framework can benefit the bottom line.

This thesis is a study of the UK military which, by default, must demonstrate a high level of resilience and the ability to adaptively plan in a dynamically changing and hostile environment, in order to develop a framework to develop and manage organisational resilience.. Research identified that effective leadership, evidence-based decision-making and business intelligence collection and dissemination are critical to success, which informed the development of the Organisational Resilience Management Maturity Model (ORM3). Organisational Resilience in this thesis is defined as a people focussed event, with case studies, interviews and observations of military units in preparation for deployment on operations being used to support this research. These lessons are then applied to the railway industry, in a bid to improve current resilience capabilities. Future work is likely to continue to develop the ORM3 framework, supported through the development of a cross industry learning methodology to continue to build capability. This research has already contributed to the development of resilience within the UK, having been consulted in the development of the UK national standard on resilience (BS65000: Organisational Resilience) and the UK Defence Contribution to Resilience Operations doctrine for government and local councils. It has also been used in the development of tools that can be used by organisations to develop their own awareness and resilience capability.

CONTENTS

LIST OF MAPS

LIST OF FIGURES

LIST OF TABLES

GLOSSARY

Term	Definition
4 GW	Fourth Generation Warfare – terminology for asymmetric warfare in the 21st Century where enemy seeks to minimise effectiveness of military capability. 4GW is the situation where a large, technically focussed military power is fighting a conflict against an enemy who is implementing insurgency techniques and practices, while simultaneously implementing psychological warfare against the population, turning the population into a weapon. It has also been called "War Among the People", "3 Block War" and "Hybrid Warfare".
5 GW	Fifth Generation Warfare – terminology for describing activity by hostile forces to destabilise a nation through using its own population and infrastructure as the battleground. 5GW is a tempo change from 4GW. Whereas 4GW was situated within the host nation, 5GW sees the enemy targeting the home nation of the technologically superior force, using psychological and terrorist attacks to weaken the political resolve. More advanced application will see co-ordinated cyber-attacks on civil infrastructure, co-ordinated terrorist attacks and multiple avenues of psychological warfare targeted at the home nation population.
AAIB	Air Accident Investigation Branch - Air industry specific body that investigates air accidents and distributes lessons identified from investigations.
ACSC	Advanced Command and Staff Course – UK military residential course for senior leadership personnel to develop operational planning capability.
ADP	Army Doctrine Publication
ALARP	As Low As Reasonably Possible – a mechanism for risk management within military and industry
ARAG	Advanced Research and Assessment Group - A department of the Defence Academy of the United Kingdom concerned with long-term planning and threat assessment. It was closed down in 2010, removing the independent military research capability.
ATOC	Association of Train Operating Companies (now part of RDG)
Battlegroup (BG)	A grouping of mixed military units brought together to achieve a defined task. Normally between 600 - 800 personnel and a subunit of a brigade.
BAU	Business as Usual
BCM	Business Continuity Management - The holistic management process that identifies potential threats to an organization and the impacts to

	business operations those threats, if realized, might cause, and which provides a framework for building organizational resilience with the capability of an effective response that safeguards the interests of its key stakeholders, reputation, brand and value-creating activities[1].
BCMS	Business Continuity Management System. A collection of activities focussed on delivering a Business Continuity capability
BGHQ	Battle Group Headquarters – the smallest tactical deployable stand-alone unit, consisting of several separate units to deliver a combined arms capability.
Brigade (Bde)	The smallest operational deployable unit, consisting of between 3 - 5 Battlegroups. Mixed military units and self-sufficient for a limited period. Commanded by a brigadier and consists of approximately 1500 - 3000 personnel, depending on the task.
BSI	British Standards Institute
BSOS	Building Stability Overseas Strategy – DfID strategy for UK investment overseas.
Business Continuity	Strategic and tactical capability of an organisation to plan for and respond to incidents and business disruptions in order to continue business operations at an acceptable predefined level.[2]
CAST	Command and Staff Trainer
CATT	Combined Arms Tactical Trainer
CCS	Civil Contingencies Secretariat – Branch of UK Government responsible for civil order and crisis management.
CDG	Competency Development Group – Group of training and industry specialists responsible for the quality assurance of training material.
CEO	Chief Executive Officer
Change Management	A managerial practice within organisations comprising of several activities to implement change within an organisation.
CMI	Chartered Management Institute
CNI	Critical National Infrastructure
CDS	Chief of Defence Staff
COBRA	Cabinet Office Briefing Room Alpha - The priority briefing room for Government ministers to receive updates on strategic issues.
COE	Contemporary Operating Environment
Company / Squadron Group	A grouping of mixed military units brought together to achieve a defined task. Normally between 80 - 120 personnel and a sub-unit of a Battlegroup.

[1]British Standards Institute, *BS11200:2014: Crisis Management*, BSI Standards Limited, London, 2014.
[2]Cabinet Office, *Emergency Preparation, Response and Recovery (EPRR)*, 5th Edition, 2013, p.217

Contingency	Possible future emergency or risk which must be prepared for.[3]
COIN	Counterinsurgency. Activities conducted to defeat an insurgent force. Utilises all available Government levers of power to influence host population
Crisis	An inherently abnormal, unstable and complex situation that represents a threat to the strategic objectives, reputation or existence of an organisation.[4]
CP	Control Period – Allocated period of time normally five years, for Network Rail to conduct activity in, with an allocated budget for that 5 year period.
Crisis Management	development and application of the organizational capability to deal with crises[5].
CSTTG	Command Staff Tactical Training Group
DCDC	Defence Concept and Doctrine Centre. Military think tank for strategic analysis and doctrine development
DefAc	UK Defence Academy.
DfID	Department for International Development
DfT	Department for Transport
Doctrine	Originating from the Latin phrase *doctrina*, meaning `a body of teachings` or `instructions`, taught principles or positions, as the body of teachings in a branch of knowledge or belief system. Within the thesis, doctrine is a base layer of ingrained knowledge aligned to the organisation's individual culture, that is clearly communicated, understood and applied by all, and is regularly reviewed and updated through organisational learning practices[6].
DRP	Defence research Paper – equivalent to a Masters' level thesis, submitted as part of the formal assessment process for ACSC.
DSAT	Defence Systems Approach to Training. Mechanism for the development of military individual and collective training events
ECML	East Coast Mainline
ERTMS	European Rail Traffic Management System
EPC	Emergency Planning College. Independent training facility aimed at developing resilience capability within the UK
ESG	Event Steering Group. Part of the railway strategic planning process.
FCO	UK Foreign and Commonwealth Office.

[3]Cabinet Office, *EPRR*, p.219
[4]Cabinet Office, *EPRR*, p.219
[5]BSI, *BS11200:2014: Crisis Management*, 2014.
[6] Hoiback, H., `What is Doctrine?` *Journal of Strategic Studies*, Routledge Group, Volume 34, Issue 6, 2011, pp 879 – 900; Harvey C., and Wilkinson M., `The Value of Doctrine,` The RUSI Journal, Routledge, Taylor and Francis Group, Volume 154, Number 6, 2009, pp. 26-31.

FE@R	Force Elements at Readiness. Mechanism for preparing military units for operations.
IDES	International Defence Engagement Strategy – The UK Government strategy for laying out how defence engagement contributes to delivering influence to further the UK interests across the world.
Incident	Event or situation that requires a response from the emergency services or other responders.[7]
IED	Improvised Explosive Device.
IRA	Irish Republican Army
FOC	Freight Operating Company – Freight operators contracted to haul freight across the Rail Network.
Governance	The system by which the organization is directed, controlled and held accountable to achieve its core purpose over the long term[8].
Hawthorne (observer) effect	This is where the observed group react to the presence of the observer, modifying an aspect of their behaviour in response to their awareness of being observed.
Hazard	Accidental or naturally occurring (i.e., non-malicious) event or situation with the potential to cause death or physical or psychological harm, damage or losses to property, and/or disruption to the environment and/or to economic, social and political structures.[9]
HIHP	High Impact - High Probability risks; also known as “Red Risks” within business they are the risks known to the business that could cause critical damage to the business operations or reputation.
HILP	High Impact-Low Probability risks HILP. Sometimes called “Black Swan” or “Creeping Tide” risks, these are normally risks that although can cause extensive damage, are over-looked due to the unlikeliness of the event happening.
HoCTSC	House of Commons Transport Select Committee.
HTA	Human Terrain Analysis – process of mapping out the social dynamics of a location or region.
Hybrid Warfare	A term based upon the work of senior military officers and theorists who proposed that in the 21st Century conflict would be less state on state and instead be a blend of high intensity warfare, low level asymmetric warfare and peace support operations, all occurring within a similar location.
Hyogo Framework	A United Nations initiative for a global blueprint for disaster risk reduction efforts between 2005 and 2015. Its goal was to substantially

[7]Cabinet Office, *EPRR*, p.223
[8]British Standards Institute, *British Standard 13500:2013 Code of Practice for Delivering Effective Governance of Organisations*, British Standards Institute, London, UK, 2013, p.5.
[9]Cabinet Office, *EPRR*, p.222

	reduce disaster losses by 2015 - in lives, and in the social, economic, and environmental assets of communities and countries.
ICSC	Intermediate Command and Staff Course. Residential military course to develop operational thinking within the middle management of the military.
JESIP	Joint Emergency Services Interoperability Programme - A programme to develop joint operational doctrine, practices and procedures across the emergency services, aiming to maximise capability and resources.
JNCO	Junior Non-Commissioned Officer. Junior frontline management roles of the military.
Joint Doctrine	Fundamental principles that guide the employment of UK military forces in co-ordinated action towards a common objective.
JDN	Joint Doctrine Note - A pre-doctrinal publication that presents common fundamental guidance and is part of the initiation stage of the joint doctrine development process.
JDP	Joint Doctrine Publication - A publication that introduces fundamental principles by which military forces guide their actions in support of objectives It is authoritative but requires judgement in application.
JSP	Joint Service Publication is a UK military doctrine publication used for the purpose of developing Joint operational capability within the UK military.
Leadership	Leadership is the successful projection of one's personality, spirit, vision and purpose onto a collective of individuals, tailored to the situation and the specific moment in time, in order to obtain success in the most prevailing of circumstances, in an acceptable moral, just and authentic manner. Unlike management, leadership can be displayed by any individual within the organisation and may be either an innate or specifically cultured quality within that individual. Effective leadership is dependent on the individual within the leadership role, and those within the group that give the individual the authority to lead.[10]
LWC	Land Warfare Centre
Mission Command	Mission Command is a philosophy of command, with centralised intent and decentralised execution, that is particularly suitable for complex, dynamic and adversarial situations. The Manoeuvrist Approach demands a philosophy of command that promotes freedom of action and initiative. Mission Command focuses on outcomes, as it stresses

[10]Slim, W, `Leadership in Management`, *British Army Review: Leadership: A Special Report*, Land Warfare Centre, Ministry of Defence, Warminster, 2013, pp 08 – 13; British Army Director Leadership, *The Army Leadership Code: an Introductory Guide*, Royal Military Academy Sandhurst Leadership Group, Camberley, Surrey, 2012; Jefferies, G., `Authentic Leadership in Professional Services Organisations,` *MBA dissertation*, University of Portsmouth, Portsmouth, 2009; Marquet, L.D., *Turn the Ship Around: A True Story of Turning Followers into Leaders*, Penguin Random House, UK, 2009.

	the importance of understanding what effect is to be achieved, rather than specifying the ways by which it should be achieved.
MoD	Ministry of Defence.
NDM	National Decision-making Model. A police framework that is meant to make the decision-making process easier and more uniform.
Net Ops	Network Operations is the department within Network Rail responsible for delivering the daily operations of running the railway and maintenance activities.
NGO	Non-Government Organisation - Normally a charity or other body delivering disaster support to populations or nations that isn't managed by a government.
NSS	National Security Strategy A periodic document written by the UK Government which outlines the major national security concerns and mechanisms to manage them.
OED	Oxford English Dictionary
OGD	Other Government Department - A body that belongs to another government body working in support of the organisation.
ORM3	Organisational Resilience Management Maturity Model – A framework, based on this research, for assessing and benchmarking the resilience of an organisation.
ORR	Office of Rail and Road - The UK regulation body for the roads and railways within the UK.
Operational (Bronze)	The level (below tactical level) at which the management of “hands-on” work is undertaken at the incident site(s) or associated areas, equating for single agencies to Bronze level.[11]
Operation Banner	Military codename for operations in support of local Police within Northern Ireland during the Troubles.
Operation Herrick	Military codename for operations in Afghanistan since 2006.
Operation Telic	Military codename for operations in Iraq between 2003 – 2009.
PAR	Participatory Action Research is a mechanism of research in certain communities that emphasises participation and action, seeking to understand the research topic through change and reflection.
PDSW	Planning and Delivery of Safe Work – A programme of works within the rail industry to embed a safety focussed culture into the planning of engineering works on the railway.
PIRA	Provisional Irish Republican Army was a paramilitary organisation operating within the UK seeking to force a United Ireland.

[11]Cabinet Office, *EPRR*, p.226

PJHQ	Permanent Joint Headquarters – Strategic Command Centre for UK Joint Services Operations.
PMO	Programme Management Office an internal organisation for a specific business that provides a variety of support to a single programme or multiple programmes.
PSO	Peace Support Operations are operations that makes use of diplomatic, civil and military activities to bring stability to the affected region.
PWC	Price Waterhouse Cooper – An international consulting firm heavily involved in risk management, assurance and the development of Organisational Resilience
RAF	Royal Air Force.
RAIB	Rail Accident Investigation Branch - rail industry specific body that investigates rail-based accidents and distributes lessons identified from investigations.
RCDS	Royal College of Defence Studies is the senior college of the defence Academy of the UK
RDG	The Rail Delivery Group (RDG) is the British rail industry membership body that brings together passenger and freight rail companies, Network Rail and High Speed 2. It provides a cross industry group to discuss and act on strategic issues that may impact the Rail industry.
Red Team	The name given to a team that is assigned to subject an organisation's plans and assumptions to rigorous analysis and challenge.
Red teaming	The activity conducted by the Red team within the organisation. Red Teaming is a systematic test and evaluation of offered solutions to test the resilience of the plan.[12]
Res Orgs	Resilient Organisations is a research and consulting group focused on helping organisations,
Risk	The effect of uncertainty on objectives[13].
RIO	Rail Incident Officer
Risk Awareness	The coordinated activities to direct and control an organization regarding risk[14].
RMA	Revolution in Military Affairs – a military-theoretical hypothesis about the future of warfare.
RN	Royal Navy.

[12]Ministry of Defence, *The Staff Standard for the Army*, 1st Edition, British Army Publications, Ministry of Defence, London, 2016.
[13]British Standards Institute, *BS ISO 31000:2009 Risk Management – Principles and Guidelines*, First edition, British Standards Institute, London, 2010, p.6.
[14]Ibid, p.8.

RMAS	Royal Military Academy Sandhurst - Initial Officer Training establishment for the British Army.
RSA	Royal School of Artillery – Location of the Royal Artillery Training School, based near Salisbury.
RUSI	Royal United Services Institute is a think tank for Defence matters for the UK, founded in 1831 by the Duke of Wellington.
SAORF	Systems Approach to Organisational Resilience Framework
SDSR	Strategic Defence and Security Review is a periodic review of key defence matters and funding to national defence organisations.
Sendai Framework	A United Nations initiative that is the successor agreement to the Hyogo Framework for Action (2005–2015), which had been the most encompassing international accord to date on disaster risk reduction.
SIGAR	Special Inspector General for Iraq Reconstruction. was an independent government agency created by the US Congress to provide oversight of the use (or misuse) of the $52 billion U.S. reconstruction program in Iraq.
SIO	Station Incident Officer
Situational Awareness	The state of individual and/or collective knowledge relating to past and current events, their implications and potential future development[15].
SNCO	Senior Non-Commissioned Officer is a junior command role within the UK military.
SoAR	Sale of Access Rights is a strategic process of allocating access to the rail network to Train Operators
SRA	Strategic Rail Authority - A former Government directed rail industry body responsible for determining the rail budget, setting the strategy and the leasing of the passenger rail franchises
Strategy	Originating from the Greek word *strategia* the original concept was the "science of the *strategos* (general)".[16] Within the 20th Century, the focus of strategy has also been mapped into the business world. Within the military, the concept of Strategy is the alignment of tasks, resources, capabilities and planning activities to achieve the required outcomes. Within business, strategy focuses on large-scale problem solving through the identification of issues, developing a guiding policy and then aligning required resources to defined actions to deliver successful outcomes. Both concepts seek to deliver successful outcomes through

[15]BSI, *BS11200:2014: Crisis Management*, 2014.

[16]Royal College of Defence Studies, Thinking Strategically, 3rd Edition, Defence Academy of the United Kingdom, Shrivenham, 2012 pp. 4 -10.

	the effective planning and alignment of several activities against a guiding policy to achieve the desired end-state.
Strategic (Gold)	The level (above tactical level and operational level) at which policy, strategy and the overall response framework are established and managed.[17]
Strategic Joint Command (SJC)	The lead military Headquarters for responding to UK Resilience crises in response to Government direction.
Supply Chain	The network of organisations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer.[18]
SWOT analysis	Organisational assessment tool. Stands for Strengths Weaknesses, Opportunities and Threats analysis.
Tactical (Silver)	Level (below strategic level and above operational level) at which the response to an emergency is managed.[19]
TfL	Transport for London
Threat	Intent and capacity to cause loss of life or create adverse consequences to human welfare (including property and the supply of essential services and commodities), the environment or security.[20]
TOC	Train operating Companies -Passenger train service organisations which have a granted franchise from a funder body.
TSGN	Thameslink, Southern and Great Northern (TSGN) franchise is a management contract for the provision of train passenger services on the Thameslink and Great Northern routes for the south of the UK.
UAV / UAS	Unmanned Aerial Vehicle - An unmanned aerial vehicle, is an aircraft without a human pilot aboard. UAVs are a component of an unmanned aircraft system; which include a UAV, a ground-based controller, and a system of communications between the two. The flight of UAVs may operate with various degrees of autonomy: either under remote control by a human operator or autonomously by onboard computers.
UK Military	Within this thesis, the term UK military is deemed to represent a heavily armed, highly organised force primarily intended for warfare, This term is applied when referring to the UK Armed Forces, which are known collectively in the modern day as the `military', and which may consist of one or more branches of the Armed Forces.

[17] Cabinet Office, *EPRR*, p.231
[18] Christopher M and Peck, H., `Building the Resilient Supply Chain,' *International Journal of Logistics Management*, Vol 15, No.2, 2004, pp 1-13. P.4
[19] Cabinet Office, *EPRR*, p.231
[20] Cabinet Office, *EPRR*, p.232

	This approach follows the similar approach taken in recent publications by senior UK military authors and academics[21].
VUCA	Volatile, Uncertain, Complex and Ambiguous. A term, derived from the US military, to describe the complexity of the business and military environments of the 21st Century.
Vulnerability	At risk: vulnerable; likely to be lost or damaged.[22]

[21]Elliott, C. L., *High Command: British Military Leadership in the Iraq and Afghanistan Wars*, Hurst and Company, London, 2015; Johnson, A.L., (ed), *Wars in Peace: British Military Operations since 1991*, Royal United Services Institute for Defence and Security Studies, Whitehall, London, 2014; Ledwidge,F., *Losing Small Wars: British Military Failure in Iraq and Afghanistan*, Yale University Press, London, 2012; Snedden, S E, `Northern Ireland, a British Military Success or a Purely Political Outcome', *Defence Research Paper*, Advanced Command and Staff College number 10, Joint Services Command and Staff College, Shrivenham, UK, 2010.

[22] Christopher M and Peck, H., `Building the Resilient Supply Chain,' *International Journal of Logistics Management*, p.5.

Map 1: Iraq And Regional Actors

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"*Do or do not, there is no try*".

Master Yoda – Star Wars: The Empire Strikes Back

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND TO THE RESEARCH PROJECT

The UK landscape provides multiple challenges for the rail industry, which manages a complex operation within a highly dynamic environment. This severely impacts on the strategic rail network that was constructed in the Victorian era, and limited knowledge of the construction methodologies used in the 19th Century at numerous infrastructure sites imports a significant level of risk to the resilience of the network. On the wider scale, several natural monopolies manage, such as National Grid and Royal Mail, maintain and operate supporting elements for the rail industry, which contributes to the strategic running of the UK society. [23] The ability of any one of these organisations to respond, recover and adapt to a major disruptive event is vital to the successful management of essential services which provide power, manpower or capability to the GB rail industry, demonstrated in January 2018 by the collapse of Carillion. Enhancing the level of Organisational Resilience within the rail industry, and its disparate supply chain, is a critical step in the move to develop greater resilience within the wider community and the UK as a nation, in line with the National Security Strategy.[24]

It is important that the concept of Organisational Resilience does not follow the route of Business Continuity and becomes a specialism within the business sphere. Ideally the practice of building Organisational Resilience is regarded as a blend of good management and leadership practices, which are easy to embed, manage and enhance. A reliance on bespoke specialists within an organisation creates a resilience paradox, with the risk of losing the capability if your specialists are unavailable. As part of the initial research into the rail industry to set the context, the analysis of business practices identified a lack of forward planning or a holistic approach to building resilience across many levels. Documents and research theses also identified that military examples were used to develop high level thinking within business, with several being referenced within the bibliographies.[25] Within these works there was discussion around the capability of military planning, leadership and culture that enabled successful resilience in difficult situations, but there was little documentation on the topic of Organisational Resilience and capability, which was a key element of enabling the military to function under difficult situations.

Within this thesis, the term UK military is deemed to represent a heavily armed, highly organised force primarily intended for warfare, also known collectively as the UK military, which may consist of one or more branches of the Armed Forces. For this thesis, the branches are the British Army, Royal Navy and the Royal Air Force. A military is typically officially authorised and maintained by a sovereign state, with

[23] A natural monopoly occurs when a business or industry, due to the economy of scale, resources or technical expertise, dominates the landscape to the point where it is too expensive for another organisation to attempt to challenge it.
[24] Cameron, D., *National Security Strategy (NSS) and Strategic Defence and Security Review (SDSR) 2015*, Government, Open Government Licence (OGL), London, 2015, p.5.
[25] See Gray, C. S., *The Strategy Bridge*, Oxford University Press, Oxford, 2010; Heuser, B., *The Strategy Makers – Thoughts on War and Society from Machiavelli to Clausewitz*, Praeger Security International, California, 2010; Yardley, I., Kakabadse, A. and Neal, D., *From Battlefield to Boardroom*, Palgrave Macmillan, Basingstoke, 2012; Jermy,S., *Strategy for Action – Using Force wisely in the 21st Century*, Knightstone Publishing, London, 2011.

its members identifiable by distinct military uniforms. The main task of the UK military is usually defined as defence of the state and its interests against external armed threats, internal security crises or a focussed response to UK resilience situations. These strategic tasks are laid out in government policy and form the military strategy of the UK.

Building upon the above observation, the military are used by the UK Government, due to their level of crisis management capability and strategic agility, to respond to UK resilience threat situations. Under the direction of Strategic Joint Command (SJC), the military are deployed across the UK when the Government requires bespoke resilience activities to minimise the impact of natural or man-made crises. The military also possess their own strategic resilience doctrine and guidance frameworks, written by resilience and security specialists at the UK Defence Concepts and Doctrine Centre. Thus, if the UK military are the key organisation used by Government to respond to national resilience threats, the question as to whether the business sphere could learn from the military on the development of Organisational Resilience against disruptive events began to emerge and take shape.

The military, particularly the British Army, also have a sustained period of having to manage its ability to learn from previous campaigns and prepare for other substantial challenges. It has managed disruptive change effectively while maintaining strategic and operational effectiveness, operated as a multi-national organisation utilising decentralised nodes and managed massive staff and materiel expansion and contraction, often while involved in at least one conflict. Recent work by Fox on how the British Army functioned as a learning organisation during the First World War identified several of these factors, which are discussed in Chapter 2. She noted that even before the First World War, parallels were being drawn between the management of the Army and large organisations, with both facing similar issues.[26] Yardley, in his PhD thesis and his subsequent book, also notes that businesses can learn several lessons in adaptive leadership and managing change effectively from the military.[27]

The lack of literature on the topic of Organisational Resilience or research connected with the analysis of transference of military practice led the researcher to approach the UK Defence Academy (DefAc), located near Swindon. Within its halls reside over 2000 Masters' level research papers written by senior military commanders as part of the year-long Advanced Command and Staff Course (ACSC), preparing them for strategic command. Authorisation was approved by the Academy for these documents to be reviewed. To support this publicly unseen research, extensive reviews of international associated literature was also undertaken to help inform the Organisational Resilience debate, which is discussed in Chapter 2. Another area examined was Change Management. Any act of responding to a disruptive event will require the management of the change caused by the impact, both to the infrastructure and personnel. An increased understanding of Organisational Resilience, supported by a greater awareness

[26]Fox, A*., Learning to Fight: Military Innovation and Change in the British Army, 1914-1918*, Cambridge University Press, Cambridge, 2018, p.249.

[27]Yardley, I., 2010, `The Wider Utility of Mission Command', *PhD Thesis*, Cranfield Defence and Security Department of Engineering Systems and Management, Cranfield University, 2010; Yardley, I. Kakabadse, A. and Neal, D., *From Battlefield to Boardroom*, 2012

of Change Management practices and procedures, will enable an organisation to become more flexible in its initial response and ongoing adaptation to the unfolding dynamic environment. Heavily linked is the effectiveness of the leadership to respond, guide and direct the actions of the organisation during the transitional phases from impact to getting back to the new state of normal.

1.2 RESEARCH AIM

The thesis aim was the development of an Organisational Resilience Management Maturity Model (ORM3) framework to unite various operational functions within the business, creating an internal resilience against potential threats and crises which can be implemented through strategic leadership. By analysing organisational structures, leadership and management training and education within the UK military, emergency services and current governmental work within the Resilience domain, this thesis identified lessons, management hierarchies and practices to assist in the development of a Resilience Management System for the future Railway industry.

1.3 RESEARCH CONCEPT

As the military provide the UK Government's resilience strategic response capability, this thesis is targeted at what lessons can be learned from the various activities that they have been involved in. Following the Learning Organisation approach, this thesis aims to look outwards from the rail industry towards other organisations to identify how to build and sustain its resilience through a decentralised leadership framework, maintaining a capability to respond to crises and remain focussed on the day job. The military, viewed as a complex, multi-functional organisation operating through a decentralised leadership framework and running internationally focussed operations, provides a good case study to understand how it develops and sustains resilience capability.

This research is therefore focussed on what lessons industry can learn from observing and analysing how the military operates. It is important to note that lessons can be learned from both positive and negative experiences, and this thesis utilises that approach. Organisational learning and knowledge transfer can happen both ways; this thesis focuses only on the lessons that industry can obtain from the military. The topic of what the military can learn from industry activities, practices and procedures is the topic for another research project. However, for lessons to be applied, they must be relevant. Senge's work in the 1990s on Organisational Learning was viewed as a paradigm shift in organisational culture.[28] As organisations sought to embrace this new way of thinking Simon Sinek changed the concept of organisational culture and leadership, dispelling the "Great Man", task orientated and directive style of the 20th Century to a more facilitative, people focussed, empathetic individual to enable the development of a Learning Organisation.[29] Matthews, an international learning consultant who has worked with industry globally and the UK military, notes that the learning methods of the 20th Century are ineffective, proposing the need to radically rethink how organisations and academic institutions

[28]Matthews P., *Learning Transfer at Work*, Three Faces Publishing, Milton Keynes, 2018, p.6.
[29]Sinek S., *Start with Why: How Great Leaders Inspire Everyone to Take Action*, Portfolio Penguin Books, London, 2009; Sinek S., *Leaders Eat Last: Why Some Teams Pull Together and Others Don't*, Penguin Books, London, 2017

assist individuals to learn effectively. The art of learning has changed with the arrival of the agile learning organisation, utilising informal learning techniques and learning transfer to obtain market position.[30] Matthews notes that for the learning organisation to work, the leadership must become part of it; a learner and a sponsor. The leadership styles of the 20th Century do not sit comfortably with effective learning; leaders need to engage, encourage, support and empathise with the learners.[31]

King posits that the heroic leadership of the Second World War is not compatible with today's stabilisation and counterinsurgency (COIN) operations, with instant media coverage, instantaneous information and immediate political scrutiny.[32] Sinek supports this notion, using US Special Forces and their support elements, rather than traditional military structures, as the template for the leadership model of the 21st Century. Technologically aware, empowered and collaborative, Special Forces leaders work with their members, rather than directing them. Individuals within the team are specialists, empowered to raise concerns based on their knowledge, experience and training.[33] This level of capability on the modern battlefield is critical, as the level of information available and the almost instantaneous ability for it to be transmitted globally provides a challenge not witnessed in the early 1990s. By the turn of the century, any individual with a smartphone or a video camera could report the news, changing the strategic situation. The ability to utilise this new phenomenon has altered the balance of power on the battlefield to the force that maximises the airwaves. Mackay and Tatham, pioneers of the population focussed operations in Afghanistan, note that:

> `Research by Ivan Ameguin-Toft identified that since 1800, the stronger force defeated the weaker force on a ratio of 2:1. However, since 1950, the weaker forces have improved considerably, and in several conflicts at the end of the 20th Century, the larger force was actually in trouble.'[34]

This research project is not a detailed review of the history or the development of the culture of the military; military historians would be quick to highlight that to do this effectively, the researcher would need to look back to the English Civil War to start exploring the beginnings of the culture of today's military. Rather, it will examine how the modern military conducts its activities, including warfighting and operations in support of UK national resilience, to identify key lessons that can be adapted into industry to build and enhance industry resilience capability.

As the focus of this thesis is the lessons modern industry can learn in building resilience from the military, much of the research is focussed on the post-conscript UK military organisation. By reviewing the military prior to the cessation of National Service, there is a risk that this may impact on the effective lessons being identified. Likewise, reviewing a European military may develop the wrong cultural

[30]Matthews P., *Informal Learning at Work*, Three Faces Publishing, Milton Keynes, 2013; Matthews P., *Learning Transfer at Work*, 2018,
[31]Matthews P., *Informal Learning at Work*, 2013, pp 31-35.
[32]King A., *Command: The Twenty-first Century General*, Cambridge University Press, Cambridge, 2019, pp 214-281.
[33]Sinek S., *Leaders Eat Last*, 2017, pp. 4-9.
[34]Mackay A and Tatham S, *Behavioural Conflict: Why Understanding People and Their Motivations Wil Prove Decisive in Future Conflict*, Military Studies Press, Essex, 2011, pp.14-15.

understanding, given the uniqueness of the UK as an Island nation. The culture of today's business is focussed on individuals who have chosen to work and remain with that organisation, and reviewing a military that is based on a similar construct of being fully professional and comprised of a volunteer force is better suited to the context of this research, as identifying lessons from a conscripted military may not clearly obtain applicable lessons for today's business.

1.4 OVERVIEW OF THE RESILIENCE ISSUE

The world within which the UK operates has become more contested, complex and congested,[35] with the UK's military and commercial organisations facing a myriad of ongoing disruptive complex threats which have become blurred through globalisation.[36] The rise of Islamic fundamentalism, greater instability in the Middle East, the Ukraine crisis, ongoing cyber-attacks and risk of pandemics has made the world more unstable.[37] Despite progress at the global level for greater commitment for more holistic ways of working,[38] there are still considerable gaps between what has been agreed in principle and how policies can be mainstreamed into government practice.[39] Research in the first decade of the 21st Century identified serious concerns over the resilience capability of the UK at a strategic level, with government and industry organisations failing to respond effectively to natural and man-made crises.[40] Learning from establishments developed to have a high level of self-resiliency, such as military forces, civilian organisations could develop a culture of organisational resilience to maintain stability, successfully recover from and adapt to major disruptive events. This approach would enable the development of one of the Hyogo Framework's strategic objectives within the UK: `The development and strengthening of institutions, mechanisms and capacities at all levels, particularly the community level, can systematically contribute to building resilience to hazards.[41]

Development of resilience within organisations will build strength within communities. Organisations that provide employment and purpose to communities can add to catalysts to address the negative downturn of the local community. The social decline of the communities built around the UK coal mines provide recent evidence of the impact of poor organisational resilience and the community impact. More recently, the collapse of large retail and department stores, also demonstrate the social impact of poor organisational resilience, poor management of strategic risk and a failure at the strategic leadership level (Table 1).

[35]Ministry of Defence, *Army Doctrine Publication: Operations*, Development, Concepts and Doctrine Centre, Shrivenham, 2010.
[36]Gustafson K., `Complex threats: The Globalisation of Domestic and Foreign Security', The RUSI Journal, The Royal United Services Institute, Routledge, London, Volume 155 Issue 1, 2010, pp 72-78.
[37]Cameron, D., *NSS and SDSR 2015*, Government, OGL, London, 2015, p.5.
[38]UNISDR Hyogo (2005 – 2015) and Sendai (2015 – 2030) frameworks. See www.unisdr.org for more details.
[39]Thompson, E., *Smart Power*, Kokoda Papers Number 12, April 2010, Kokoda Foundation, Kingston, p.2.
[40]Cole, J., Securing Our future: Resilience in the Twenty-First Century, The RUSI Journal, The Royal United Services Institute, Routledge, London, Volume 155 Issue 2, 2010, pp 46-51.
[41]United Nations Office for Disaster Risk Reduction, International Strategy for Disaster Reduction (UNISDR), *Hyogo Framework for Action 2005 – 2015*, *Building the Resilience of Nations and Communities to Disasters*, United Nations, 2005,p.4, downloaded from www.unisdr.org.

Serial	Organisation	Social Impact – Job losses
1	Blockbusters[42]	2000 jobs
2	British Home Stores[43]	11000 jobs
3	Austin Reed[44]	1000 jobs
4	Woolworths[45]	30000 jobs
5	Carillion[46]	20000 jobs

Table 1: Organisation Collapses and Social Impact.

The collapse of Carillion highlighted the predatory aspect of the financial assurance community, with the Government investigation singling out the large firms of KPMG, Deloitte, EY and PwC as having created a monopoly and not providing an effective assurance framework for UK industry. The report highlighted that the drive for profits had impacted negatively on the ability for the companies to act independently of its customers, calling into question the reliability of the accounting and assurance industry and the fact that "The Big Four" had set out to create a natural monopoly, barring access to competitors[47]. This raises concerns for the quality of support and guidance given to the rail industry by the same "Big Four" agencies, as these agencies advise and are woven into several large rail industry programmes and projects. The government report has raised serious issues around the quality and performance around the business models and advice that these organisations have delivered to multiple companies, as well as their operating methodologies to maintain a closed market to competition. The work for this research thesis has been conducted in three distinct phases;

Serial	Phase	Activity
1	Phase 1	Detailed study of the concept of organisational resilience, utilising expertise from across the globe from industry, military, government and academic specialists.
2	Phase 2	Detailed study of the GB rail industry to identify the current situation and issues it faces, along with potential root causes and management mechanisms.
3	Phase 3	Detailed analysis of the military during its recent period of operations in fragile or failing states as it sought to support the development of resilience within the national framework of the relevant nation, and how the staff within the command centres contributed to this. These military operations were conducted as the organisation maintained a business as usual image within the UK.

Table 2: Research Phases

[42]Ruddick, G., `Blockbuster Collapse to Cost Taxpayer £7m`, *The Telegraph*, reported 21 Dec 2013, available from accessed 10 Mar 2016).
[43]Sheffield, H., `BHS Collapse: Sir Philip Green Called to answer Questions`, *The Independent*, reported 26 April 2016, available from www.independent.co.uk. (accessed 10 Mar 2016).
[44]BBC Business, `Austin Reed Collapse to Cost 1000 jobs`, reported 31 May 2016, available from www.bbc.co.uk/news/business (accessed 10 Mar 2016).
[45]Hall, J., `Woolworths: The Failed Struggle to Save a Retail Giant`, *The Telegraph*, reported 14 Nov 2009, available from www.telegraph.co.uk/finance (accessed 8 Mar 2016).
[46]Mor F., Conway L., Thurley D. and Booth L., `The Collapse of Carillion', *House of Commons Briefing Paper Series*, Number 8206, House of Commons Library, Whitehall, London, 2018.
[47]House of Commons, Business, Energy and Industrial Strategy and Work and Pensions Committees, *Carillion,* Joint report (Second Joint report from the Business, Energy and Industrial Strategy and Work and Pensions Committees of Session 2017–19*),* Government, Open Government Licence, London, 2018, p.79; HoC, Business, Energy and Industrial Strategy and Work and Pensions Committees, *Carillion,* Joint report*,* Government, OGL, London, 2018, pp.79 - 86.

The research was conducted through the learning of lessons from the experience of the UK military, focussing on the period of 2003 – 2014 when the UK military faced multiple serious resilience draining factors and attempted to implement the Comprehensive Approach doctrine model. [48] These were:

- The organisation was involved in two protracted campaigns;
- The military services experienced severe manpower reductions;
- The MoD was conducting counterterrorism and national resilience tasks;
- The military were required to maintain the capability to support UK Defence Diplomacy tasks; Emergency deployments in support of National and Local governments; and
- The organisational structural change through the drawdown of military forces within Northern Ireland and Northwest Germany.

During this period, UK industry suffered several extreme weather events and international events which had the potential to cause serious reputational damage if not properly managed. These events forced the formation of the COBRA decision group, resulting in the military being tasked to support the collective response. Section 1.6 gives an overview of the issues within the GB rail industry to assist in understanding the current problem and what lessons may be transferable from the military.

1.5 STRUCTURE OF THE THESIS

This thesis explores the complicated, connected and complex environment of resilience management, particularly focussing on the preparation, response and recovery to incidents within the railway sector. It looks at how to increase operational performance and effectiveness within the senior elements of managerial leadership, who are accountable for the successful management of the national railway infrastructure, and critical to the industrial and commercial aspects of the UK. The following chapters have been organised to enable the reader to easily follow the line of analysis, the presentations of the primary and secondary data and to establish an academic argument for the need to develop the capability within the rail industry in order to develop a far greater level of resilience. Table 3 lays out the thesis structure:

[48]Ministry of Defence, *Joint Discussion Note (JDN) 4/05 The Comprehensive Approach*, Development, Concepts and Doctrine Centre, UK Defence Academy, Shrivenham, 2006.

Chapter Number	Chapter Title	Description
1.	Thesis Introduction	Introduction to the thesis and overview of the document. Clearly sets out the problem statement, research approach and methods to be applied.
2.	Literature Review	This discusses the literature that was reviewed, in conjunction with that which was reviewed in the previous chapter on organisational resilience. It looks at the impact of culture, risk and situational awareness, key areas to assist in building resilience within an organisation.
3.	Research Methodology	This discusses the research methodology utilised during the investigative element of the thesis. It explains the various approaches taken to obtain primary evidence and the methods for analysis. It also sets out how the results would be utilised to develop the resilience framework for assessing organisations.
4.	Organisational Resilience Business Case	This section discusses the business case for resilience, reasons for components, proposed mechanisms, testing assumptions, evaluating what benefits an Organisational Resilience framework would bring to a business, and how the executive leadership team can benefit directly from this innovation.
5.	Organisational Case Studies	This section analyses the approaches used within the Military and the rail industry. Using government reports, objective strategic analysis and questionnaire results from the research, this chapter helps set the context for the thesis by bringing to life the current challenges and issues both organisations face when it comes to building resilience and the framework to embed it into the organisation.
6.	Research Findings	The findings from the research into the organisations is discussed in Chapter 5, building upon the observations in the previous chapter and supported with the analysis of the key components that have been identified within the research which organisations require to develop internal resilience to manage the impact of disruptive events.
7.	Understanding the Components to Build Organisational Resilience Management (ORM).	Using the outcomes of the research, this chapter discusses how the rail industry can build organisational resilience within the industry, through the utilisation of the Organisational Resilience Management Maturity Model (ORM3). This chapter also discusses key elements organisations require to be in place to develop or improve its resilience capability to manage disruptive incidents effectively.
8.	Building ORM3	This section discusses, in detail, the design and development of the ORM3 framework.
9.	Conclusions and Next Steps	The final chapter reviews the findings, the process and lessons learnt during the project, as well as how it has been already applied to elements of the rail industry. It also highlights other areas the research has been used within the duration of the project.

Table 3: Thesis Structure

1.6 UNDERSTANDING THE PROBLEM - CONCERNS WITHIN THE RAIL INDUSTRY

The rail industry is managed by the Department for Transport (DfT), a government department accountable for the wider transport sector, which is the lead authority on the management of the strategy for the rail industry. The rail industry faces several situations which, when reviewed together, would indicate that the industry is approaching crisis point. Key areas of concern are:

- There has been a history of under investment in the 20th century within transport[49];

- A skills shortage within critical railway professions will result in wage inflation by up to 40% over the next 5 years[50];

- Staff turnover across the rail sector is 3%, compared to the UK median rate of 13.6%. This has resulted in less than one-fifth of employees being under 30, while nearly 50% are over 45[51];

- Ongoing disputes between parties within the rail industry over certain working conditions has resulted in an economic impact of potentially £300m to the UK's GDP. Research by the University of Chichester estimated that £11m a day was lost to the economy through the impact on commuters and productivity[52]. And

- The strategic framework that is used to develop the Timetable (The Network Code) has been identified as having several weaknesses, including poor risk management and ability to respond effectively to change.

In addition to these issues, recent reviews by Passenger Focus, Network Rail CEO and the Office of Rail and Road (ORR) identified that there were concerns around the resilience management of engineering works planning and management by Network Rail.[53] This was after a large amount of best practice work effort, co-ordination and planning had been conducted by the rail industry, Transport for London, the Emergency Services and the military in preparation for the 2012 Olympics. Recently the rail industry has incurred multiple high-profile fines due to the failure of elements of the industry to meet contractual agreements. Recent examples are the failure to mitigate the engineering over-runs at King's Cross and London Bridge during Winter 2014/15, which subsequently resulted in a fine of £2m by the ORR for the impact and failure to meet its contractual obligations.[54] This topic is explored further in Chapter 5.

Recent reviews into incident management have indicated that there was no evidence of central management ownership or business governance of the relevant procedures across the industry at a strategic level, with the operational elements (Train Operating Companies, Freight Operating

[49]Department for Transport, `Transport Infrastructure Skills Strategy: Building Sustainable Skills', Department for Transport, Open Government Licence, London, 2016.
[50]Ibid, p.16.
[51]Ibid, p.19.
[52]http://www.chi.ac.uk/news/southern-rail-strikes-cost-uk-ps300million-reveals-university-study, accessed 26 Dec 2016.
[53]Passenger Focus, *ORR investigation into Network Rail's New Year engineering overruns,* Passenger Focus, Feb 2008; Office of Rail and Road. Network Rail Monitor, Quarters 2,3 and 4 of Year 5, 2013 – 2014, Office of Rail and Road, London, available at https://orr.gov.uk/rail/publications/economic-regulation-publications/network-rail-monitor, accessed 10 Jul 2017; Paonessa, F., *A review into the causes of passenger disruption affecting King's Cross and Paddington station services on 27 December 2014*, Network Rail Report, Network Rail 12 Jan 2015.
[54]Farrell, S., `Rail watchdog fines Network Rail £2m for London Bridge delays`, *The Guardian*, reported on 10 August 2015, available from www.theguardian.com (accessed 12 Nov 2015).

Companies, Contracted services and Network Rail) each exclusively managing their own areas.[55] In 2018 there was also no business continuity framework in place, despite the DfT directing departments to implement a strategic business continuity framework in 2011. This made Network Rail non-compliant with the Civil Contingencies Act. Subsequently Network Rail's resilience group have begun analysing the proposed resilience framework as a means to address this failing.

While the Highways Agency had developed guidance documents around the Civil Contingencies Act, neither Network Rail nor TfL had an equivalent.[56] Further research identified that this is present in many large organisations, with many senior members of the management failing to show an understanding of the link that exists between business continuity, incident management and strategic business success[57]. Based on the lessons from the 2013/14 storms, there was specific direction given to Network Rail and the Highways Agency to engage fully with the Local Resilience Fora to develop better information sharing and operational planning.[58] It was concerning, given the strategic responsibility that Network Rail has for the rail network, that this engagement was not already operating effectively in line with the direction given by the government within the Civil Contingencies Act 2004 (CCA 2004) framework.[59] In 2017 a strategic Business Continuity Management policy was written, with an organisation concept put in place. However, in 2018 this had still not been converted into a framework across the organisation, resulting in the organisation still failing to deliver its requirements under the CCA 2004.

Key to an effective crisis response is a co-ordinated and well-managed use of resources to deliver mutually supporting activities with the aim to complete the task as effectively, safely and timely as possible. Within a complex disruptive event, this role is conducted by a control room. Within the rail industry, the role of the control room is performed by the Route Control Centre, which is tasked with the daily running of the operations of the railway, co-ordination of response, recovery, maintenance and inspection of assets, and the liaison with higher and lower command and control staff within a certain region of the country. In times of incident, it will also act as the focal point for the immediate co-ordination and information gathering, reacting to the situation and seeking to rectify it as soon as physically possible. In both the military and railway operations, the Operations Room, and the Command and Control staff within it, are critical to the resilience of the respective organisation. While the military has bespoke training and regular testing and re-evaluation of practices and personnel at all levels, with virtual and physical exercising of the resources and various responses, this was not evident within the rail industry.

[55]Office of Rail and Road, `Review of Network Rail's Performance Delivery to South Western Railway Services', Office of Rail and Road, London, 2018; Office of Rail and Road, `Independent Inquiry into the Timetable Disruption in May 2018', Office of Rail and Road, London, 2018
[56]Department for Transport `Transport Resilience Review: A Review of the Resilience of the Transport Network to Extreme Weather Events,' Secretary of State for Transport Office, Williams Lea Group, London, 2014, p.53
[57]Lindstrom, J., `A Model to Explain a Business Contingency Process,' *Disaster Prevention and Management, Vol 21, No2*, TVM/DMK, Lulea University of Technology, Lulea, Sweden, 2012, Pp 269-281.
[58]Department for Transport, 2014, p.53
[59]Under the CCA, Network Rail is a Category 2 responder.

1.7 SHAPING THE RESEARCH QUESTION

The military states that "effective decision-making relies on thorough understanding of the environment, circumstances and situations within which we may find ourselves operating or interacting".[60] Education, training and lessons learnt procedures are vital to developing the understanding required to create a successful response to the next major disruption. This is supported by the action of the military, which has invested heavily in physical and virtual training packages for all levels of personnel. In 2011 General Paul Newton challenged the establishment to invest more in the conceptual development of people as at the centre of successes and failures sat the capability of individuals.[61]

Within the rail industry there was a reluctance to use the phrase "Command and Control", as it indicated a formalised approach to the decision-making. It was deemed preferable to use phrases such as "expectation management; liaison; communicate; and impart and empower." It was thought that Command and Control gave too much of a militarised feel for a commercial business, with the suggestion that a decision was made and enforced by a single individual. Though the former approach may work well within commercial business, where there is time to conduct long-term analysis, factor evaluation and observe the current and predicted trends, within the area of Incident Management the requirement is for a single individual to take "Command and Control" of the complete situation, setting direction, goals, targets and assisting with the availability of assets through regular liaison with senior stakeholders. Conversely, there are areas where the military could learn from the rail industry when it comes to developing the capability of its project, programme and senior leaders in defence. Personnel in these areas need to apply less "Command and Control" approaches to business, and more facilitative, collaborative and management approaches. This can be developed through better education and understanding of management tools, practices and procedures, enabling the organisation to maximise the key areas of human and material resource management. Drawing on current research and from ACSC theses, observations on the current state of military education for senior level officers indicated a critical level of failure in their preparation for business-critical roles[62], which in turn impacts on the level of capability and resilience of the military to support the transition of individuals into the civilian sector.

Utilising research conducted by candidates on the DefAc ACSC, supported by numerous publicly available reports, this area will be studied in more depth further in this thesis. Network Rail and the military are currently struggling with making the transition from being training organisations to learning organisations, developing lessons learnt initiatives and adapted practices, building individual and business capability. This aspect is key as a dynamic learning process is critical to the creation and implementation of credible incident management practice and procedures within the relevant

[60]Ministry of Defence, *Joint Defence Publication (JDP) 04 Understanding*, Development, Concepts and Doctrine Centre, Shrivenham, 2010, p 2-1.
[61]Ministry of Defence, *Joint Doctrine Note (JDN) 3-11 Decision Making*, Development, Concepts and Doctrine Centre, Shrivenham, 2011, p.iii.
[62]Lucas, C. I., `Reflection in the Development of Professional Military Leadership', *Defence Research Paper*, Advanced Command and Staff Course Number 14, United Kingdom Defence Academy, 2011.

establishment, which in turn enhances the organisation's resilience. Based on initial points raised above, the research question posed was:

> *"What lessons can be identified, learned and applied by the civilian business sector from the UK Military on Stabilisation and National Resilience Operations*."

The key objective of this study was to identify key lessons that the rail industry can learn from the military on operations and how to apply them. To enable the successful answering of this question, there are several questions, or hypotheses, that require investigation to answer the research question:

- H_1: Within a dynamically changing situation with limited situational knowledge, the military develops its resilience capability through the application of adaptive planning and the re-shaping of its organisational culture.

- H_2: Within a hostile environment, the military has developed the capability to successfully plan, respond and recover from a disruptive event through effective preparation, education and training of its personnel.

- H_3: In order to successfully manage a complex, dynamically changing problem, the military develops and maintains an effective multi-agency approach, employing systems-thinking.

- H_4: To remain effective when managing the response to a disruptive event, the military develops and maintains a shared organisational ethos and culture across all the departments.

- H_5: To support the implementation of tactical operations, the military develops and maintains a clear strategic direction and end-state that is shared across all affected departments.

- H_6: Organisations without a clear understanding of resilience and the supporting activities fail to improve their resilience levels after reviewing previous events and impacts.

- H_7: The GB rail industry, through a lack of clear understanding of the importance of Organisational Resilience and the supporting activities, delivers a limited level of capability and performance.

Initial investigations identified that the military had realised the physical and cognitive benefit of utilising a blended approach to training and education to develop understanding, establish the context and deliver insight and foresight to a crisis, though at times it has failed to invest in the dominant factor to building a successful response to the complexity of the modern battlefield, the human dimension.[63] To enable an effective investigation of the hypotheses, a questionnaire was distributed to officers of units

[63]MoD, *JDP 04 Understanding*, 2010; MoD, *JDN 3-11 Decision Making*, 2011, p.iii.

within the military going through operational training at the Command and Staff Training (CAST) units located in Southern England, Northern England and Germany, as well as those on training courses at the Land Warfare Centre (LWC). The questionnaire was applied over a three-year period, seeking to capture as many replies as possible, and explained in detail in Chapter 5. The questionnaire aimed to target four primary areas to support the main research questions:

- The level of education support given to individuals through time, cost and management support;
- The level of training support given to individuals through time, cost and management support to prepare them for roles;
- The level of preparation for their role on operations working within a multi-agency, multi-national environment; and
- The level of leadership development and implementation within the organisation.

Lessons learnt in both the contemporary operating environment and the current economic climate may assist the growth of both organisations in the future, creating a better understanding of the needs of the business. This area is critical as the government continues to push private sector companies to support the newly formed Military Reserves.

The complexity of the rail industry and the role that Network Rail has within the railway infrastructure management in times of emergency, the diversity of the organic elements of the company, as well as the size of the workforce and its supply chain is such that a comparison with the UK's military seemed a reasonable approach to explore. The dynamic environments that both the military and Network Rail operate in, whether it is the battlefields of Iraq, or the ever-changing demands placed on the rail industry, require a strategic capability to react quickly, effectively and in the constant glare of the public media when faced with a major disruptive event. In the last decade, the public image of both brands has suffered damage, with belief having been shaken due to both the situation of Britain's over worked and over stretched Victorian network,[64], and the poor results of the Iraq campaign.[65] The ability of both organisations to manage the effective delivery of change, as well as managing organisational learning and development of capability are areas that this research also analyses.

1.8 THE NEED FOR ORGANISATIONAL RESILIENCE

The benefits of the integration of a resilience culture within an organisation cannot be overstated. The examples previously raised in section 1.4 demonstrate the outcome if resilience is not developed effectively. This was reinforced in early 2018 through the collapse of Carillion Group and the 40% drop

[64]A report released by the Office of Rail Regulatory indicated that customer faith in Network Rail had dropped – the rail industry blamed this on the poor winter weather it had faced in the 2012 – 2013 winter period.
[65]Reports released by the Houses of Parliament Defence Select Committee in 2010 identified extreme concerns over the handling of the Iraq and Afghanistan campaigns, and the lack of support from the British public.

in Capita share prices due to severe profit warnings. Both these organisations provided critical key support services to the rail industry and the military and their underlying failings created risks to the capability of military and rail operations. It is also important to understand the wider threats to organisations that exist within the UK. Though it is impossible to predict the future, one must anticipate the threats that they could face to enable effective planning; Professor Sir Michael Howard warns:

> "No matter how clearly one thinks, it is impossible to anticipate precisely the character of future conflict. The key is to not be so far off the mark that it becomes impossible to adjust once that character is revealed."[66]

In 2002 the UK suffered from the Foot and Mouth epidemic, which forced the culling of thousands of heads of livestock. In 2003 the government was faced with a national fire-service industrial action. Both events forced the deployment of the military to manage the situation and support the continued running of services. In the winter of 2015 – 2016 extensive storms over the Christmas period resulted in extreme weather conditions in the North of England, resulting in the deployment of over 2000 military personnel to support overstretched civilian response agencies. As the Organisational Resilience profession seeks to gain ground, building upon the foundations created by the development of Business Continuity and Crisis Management frameworks, research has shown that the requirement to understand how to build and manage resilience has become a priority within the business world.[67]

Resilience also provides a level of security against disruptive change, with robust communications, Change Management, risk and assurance activities assisting the organisation to mitigate the impact of such events. As the resilience concept matures and establishes itself as an increasingly necessary and critical discipline within industry, there is a requirement for strategic leadership personnel to become aware of how to resource and support a resilience culture within their workforce. Pressures on organisations in all the UK sectors during the impact of the 2008 financial crisis, with the UK GDP falling by 1.5% in the 4th quarter of 2008 and the nation officially falling into recession,[68] have forced the implementation of systems that require businesses to evidence performance, manage risks and implement controls to mitigate the impact of these potentially disruptive events.[69] Performance pressures, poor incident response and strategic decision-making errors may help to explain why there is a drive to identify a strategic approach to managing resilience. While processes such as Business Continuity, Incident Response, Emergency Planning and Crisis Management enable a company to recover from a potentially disruptive event, they are tactical processes which do not promote a strategic

[66]Ministry of Defence, *Strategic Trends Programme – Future Character of Conflict*, Defence Concepts and Doctrine Centre, Shrivenham, Swindon, 2010, p.2.
[67]Cerullo, V. and Cerullo, M., `Business Continuity Planning: A Comprehensive Approach', *Information Systems Management*, Summer 2004, available at www.infosectoday.com (accessed on 12 May 2014); Atkins, D. A. et al, *Roads to Ruin The Analysis; A Study of Major Risk Events*, Cass Business School, AIRMIC, 2011. Available from www.reputability.co.uk (accessed 10 Sep 2015); SteelHenge *Crisis Management Conference: Post Conference Report (2013),* downloaded from www.steelhenge.co.uk (accessed 27 Sept 2013); Hamel, G. and Valikangas, L., `The Quest for Resilience', *Harvard Business Review*, 2003. Available from www.hbr.org/2003/09/the-quest-for-resilience, (accessed on 15 October 2013);
[68]University of Liverpool, `The Financial Crisis of 2007 / 2008 and its impact on the UK and other Economies`, University of Liverpool Information Guide, available from at www.higherlearning.ac.uk (accessed on 04 Sept 2015).
[69]BSI, `BS11200:2014: Crisis Management', 2014, p.10.

proactive capability development, as each operates within a distinct environment. Organisational Resilience involves dealing with disruption with a clear intent, coherence and resourcing. It requires a combination of maintaining continuity, building long-term viability against strategic change and understanding the changing external environment.[70] The concept of building organisational resilience and the underlying benefits of putting it in place are discussed in greater detail in Chapter 4.

1.9 ETHICAL CONSIDERATIONS

This study follows the guidelines that were laid down by Wolverhampton University Ethics Committee at the beginning of the research journey in 2013 and reviewed in 2014 on release of the University's Ethics Handbook.[71] As this research thesis is a study of the military as an organisation, the initial review of the Ethical risk was deemed to be low. The methods of primary research gathering within the military, through questionnaires, live case studies and informal interviews, were all conducted within military establishments and no identifying personal information was taken. All participants were briefed prior to the events and made aware of the reason for the research. The research into the interactions of staff within the case study exercise was also utilised by the MoD to help develop best practice.

The questionnaire carried a written brief detailing the reason for the capturing of information around the level of training, development and the implementation of the Comprehensive Approach on operational deployment. Military observers working with the researcher during the live case study exercise were briefed on how to capture data and what to identify. Due to all these procedures, plus the fact that the hard copy data is held by the researcher in secure premises, with the soft data held on an isolated computer system, or a password protected server, places the research as a Category A project. Further guidelines that were followed were:

Serial	Topic	Action
1	Informed and voluntary consent of all participant	The selection of the participants was conducted by the primary contact of each training element attending the CAST centre. All Commanding Officers were approached initially to obtain their consent for the research to be collected. The researcher highlighted that no individual was compelled to complete the questionnaire or participate in interviews. Within the industry context, all members of the Operations and Strategic Planning departments were invited, via an external medium, to partake in a questionnaire, with no personal data being captured by the document.
2	Respect for privacy and confidentiality	All interviewees were asked if they were comfortable and had volunteered for the interview. All personnel were briefed that they could give as much or as little information as they wished and were free to terminate the session at any time.
3	Limitation of deception	Each interviewee was asked to read over the notes taken to ensure what was captured was correct. Questionnaires were either captured through written format and handed directly to the researcher or typed directly into the online survey tool.

[70]British Standards Institute, `BS65000:2014: Organisational Resilience`, BSI Standards Limited, London, 2014, p.3.
[71]Wolverhampton University *Handbook for Ethical Approval and Practice Procedures*, Wolverhampton University, March 2014, available at www.wlv.ac.uk/research/about-our-research/policies-and-ethics

4	Minimisation of Risk	Between the researcher and the University, supported with regular correspondence with the university via the assigned tutor and evaluation groups.
5	Training and Skills	As an instructor in Gunnery and having conducted three previous Masters' research programmes, the researcher was trained in conducting investigative work within the organisation, both in the operations and research roles.
6	Management of sensitive data	There is no collection of sensitive personal data or information that would be classed as restricted under the DPA 1998 or GDPR 2016.

Table 4: Research Ethical Considerations

1.10 CONTRIBUTION TO KNOWLEDGE

The key output from this research was the development of the ORM3, which enables an organisation, through engagement with its workforce, to clearly assess and benchmark its resilience capability. In previous discussions and communications this was known as the Systems Approach to Organisational Resilience framework (SAORF) tool, though this has been subsequently revised, as the newer version is built around a maturity model to enable the benchmarking and assessment of Organisational Resilience.

Comprehensive Approach to Resilience									
Strategic Eelement									
CR1	Corporate Culture Maturity								
CR2	Strategic Corporate Vison								
CR3	Adaptive Leadership framework								
Business Assurance		Business Agility		Business Planning		Business Structure		Business Development	
AS1	Insurance	BA1	Hazards and consequences	BP1	Business Intelligence Frameworks	BS1	Roles and Responsibilities	BD1	Staff engagement & Involvement
AS2	Internal & External Situation Monitoring & Reporting	BA2	Connectivity Awareness	BP2	Connectivity	BS2	Internal Resources	BD2	Communications and Relationships
AS3	Risk management & Planning	BA3	Corporate Security frameworks	BP3	Long term performance requirements	BS3	External Resources	BD3	Research, Innovation & Creativity
AS4	Robust Processes for Identifying & Analysising Vulnerabilities	BA4	Adaptive Decision making	BP4	Information and knowledge collection frameworks	BS4	Silo Mentality Management	BD4	Continuous Improvement frameworks
AS5	Recovery Priorities	BA5	Exercises	BP5	Operating and Licencing frameworks	BS5	Staff Talent & Succession planning frameworks	BD5	Corporate Social Responsibility

Figure 1: Organisational Resilience Management Maturity Model (ORM3) Source: Author

The ORM3 framework (Figure 1) has been converted into a business application, enabling the conceptual considerations of this thesis to be converted into a system of systems business tool. This provides an organisation the ability to assess its current resilience, map its improvement approach and conduct an internal audit of relevant practices and procedures across its various departments or functions. This framework will be discussed in greater detail in Chapters 7 and 8.

Chapter 7 will explore the key components of the framework identified by the research, while Chapter 8 explores the detailed development of the framework to enable it to be utilised by industry. This research has identified several key areas, such as Change Management, Crisis Communications and effective Business Continuity Management where organisations have struggled to implement effective frameworks and, through a process of organisational learning, may utilise practices and procedures from the military to enhance their approach.

The research findings have been utilised by the military, rail industry and the wider business community, with the possibility of it also being extended to other members of the Critical National Infrastructure (CNI). This will enable the development of resilience management-based training and education events to increase resilience capability within these organisations. Key to this thesis was the identification of the knowledge gap within the rail industry, and how lessons from the military on operations could assist in developing organisational resilience within the GB railway industry. To enable this research to contribute to the rail industry, the research approach was practically based, focussing on the "real life issues" for the rail industry as a member of the UK CNI group. During the period of research, elements of the findings of the research, particularly around the impact of culture within the business sector, was used to assist in the development of the first British Standard in Organisational Resilience, BS65000, with the researcher presenting on behalf of the Cabinet Office team at the Business Continuity Institute International conference in 2014. This research has also been used to help develop greater resilience within London based organisations, with the researcher presenting at the Corporate Security and Resilient Networks (CSARN) conference in 2015.

The research findings around the concerns of leadership, collaborative working and resilience preparation of teams within the rail industry were used to design and develop the strategic incident management training framework for Network Rail, which is discussed in Chapter 9. Within the military sphere, the case study review of the Iraq campaign was peer reviewed and published as part of a lessons learnt from conflict by the British Army Review, as well as the researcher being part of the Doctrine Writing Team for the development of the revised Joint Defence Publication 02 - Defence Contribution to UK Operations. As part of the wider development of strategic capability, the researcher was also asked to lead the Learning Needs Analysis to create a programme to develop the first Doctrine Writing education course for senior military officers, thus embedding the importance of strategic leadership in building capability and resilience within the organisation.

Within the education sphere this research has also been used to develop part of the Railway Risk and Safety Management MSc programme at the University of Birmingham, delivering the lessons of incident response and management to future rail industry managers. The findings around the limited level of understanding of organisational resilience and effective business continuity and crisis management at a strategic level within industry has resulted in the researcher developing and delivering Masters' level education programmes at the UK Resilience Centre. The research findings, and the development of the ORM3 model, has also been recently published in an international Crisis Management and Emergency

Planning Journal, assisting senior business managers on how to find ways to develop their organisational resilience, based on observations from the UK military[72].

The research findings clearly identified, through primary and secondary sources, a level of concern and limited capability around the organisational resilience capability within industry. The next section looks at this at a higher level, while Chapter 4 discusses the business benefit of Organisational Resilience management. The research findings, discussed in detail in Chapter 6, pull out these concerns and the impact that they had on the resilience and capability of the Infrastructure Manager

1.10 WHY DEVELOP ORGANISATIONAL RESILIENCE?

In recent years organisations have become increasingly focused on their ability to identify and react to emerging crises[73], either through slow-burning performance issues, "creeping crises"[74] or large-scale shocks through market forces, man-made events or environmental impacts. Being able to react effectively to unfolding crises is complex as planning is based on initial assumptions that are often aligned to historical evidence, limited information and personal experience. The UK Government's view in 2010 was that resilience encompassed activities that aimed to prevent, protect and prepare for natural hazards, but there was no mention of man-made events.[75] Given the increased threat of malicious events, this raises concerns regarding the analyses conducted within the interdependencies of communities and organisations and the ensuing impact of a man-made crisis such as the 2005 Buncefield oil depot explosion[76], the 2008 financial meltdown[77] or the more recent strategic shock caused by the UK European Referendum on the 24 June 2016. Initial financial reviews of the referendum disruption indicated that $2tn had been lost off global markets, with the UK pound plunging to a thirty-one-year low overnight, while politically there was a forced change of prime minister and numerous senior government members.[78] Socially the UK fractured along political, race, social, age and voting lines. Though the vote was taken as a nation, data demonstrated that while Northern Ireland and Scotland voted to stay within the EU, England and Wales voted to leave. As more of the population

[72]Gracey, A., `Building an Organisational Resilience Maturity Framework` *Journal of Business Continuity & Emergency Planning*, Henry Stewart Publications, Vol 13, No.4, 2020. Avaliable at https://www.ingentaconnect.com/content/hsp/jbcep/2020/00000013/00000004/art00003

[73]Stephenson, A., *Benchmarking the Resilience of Organisations*, PhD Thesis, Canterbury University, New Zealand, 2010, p.5. Available at www.resorgs.org.nz (accessed 15 Sep 2014).

[74]Rusaw, A.C. and Rusaw, F., `The Role of HRD in Integrated Crisis Management: A Public Sector Approach', *Advances in Developing Human Resources Journal*, April 2008, 10:380. Available at www.adh.sagepub.com/content/10/3/380 (accessed on 15 Dec 2014).

[75]Cabinet Office, *Strategic Framework and Policy Statement on Improving the Resilience of Critical Infrastructure to Disruption from Natural Hazards*, Natural Hazards Team, Civil Contingencies Secretariat, 2010, p.7.

[76]Control of Major Accident Hazards (COMAH), *Buncefield: Why did it happen?* Health and Safety Executive Report, 2008. Available at www.hse.gov.uk/comah/buncefield/buncefield-report.pdf (accessed 10 Feb 2016). The Buncefield explosion, which occurred on 11 December 2005, resulted in multiple explosions which devastated the site, destroying 23 fuel storage tanks, injured 43 individuals, and forced the evacuation of 2000 people. The resulting fire burned for 5 days, emitting a large amount of smoke and pollution into the atmosphere over southern England.

[77]Fraser, S., *The impact of the financial crisis on bank lending to SMEs*, Department of Business Innovation and Skills, 2012. Available from www.gov.uk/government (accessed 10 Mar 2016); The Financial Crisis Inquiry Commission, *The financial crisis inquiry report*, United States Government, 2011. Available at www.gpo.gov (accessed 19 Jan 2015).

[78]Allen, K. and Monaghan, A., `How the shock referendum result has affected sterling, stocks and shares.' *The Guardian*, reported on 8 Jul 2016. Available at www.theguardian.com (accessed 18 Jul 2016); Elliott, L., Allen, K. and Treanor, J., `Brexit wipes $2tn off markets as Moody's lowers UK credit rating outlook.' *The Guardian*, reported on 25 Jun 2016. Available at www.theguardian.com (accessed 10 Jul 2016); Cunningham, T., Brexit vote wipes $2 trillion off global stocks and knocks pound to 31-year low.' *The Telegraph*, reported 24 Jun 2016. Available at www.telegraph.co.uk (accessed 16 Jul 2016); Carney, M., `Statement from the Governor of the Bank of England following the EU referendum result.' Bank of England Governor's Public Statement, released 24 Jun 2016. Available at www.bankofengland.co.uk (accessed 18 Jul 2016).

sat within the nations that sought to leave, the UK was deemed to vote to extract itself from the EU. This resulted in the re-emergence of the call for Scottish Independence and a united Ireland debate as both nations sought to remain within the EU, changing the landscape for British and European based organisations.

1.11 DEVELOPING THE RESEARCH METHOD

Resilience management has attracted researchers seeking to develop the area, especially within the commercial or industrial sectors, as it becomes a critical area of knowledge required to maintain corporate capability in times of crisis.[79] The researcher initially approached this topic using a 'grounded theory' approach. This offered the ability to "avoid rigid, preconceived hypotheses and attempt to focus on relevant theories as he or she becomes more sensitised to the area."[80] By approaching the subject with an open mind and no preconceived ideas regarding what should or would be proven, a grounded theory approach would enable the use of the data captured in the process of the research to support the development of the theory through thorough analysis during the actual research[81]. As this research is also examining the resilience management approach within the military, an event which heavily involves social action amongst tight knit teams often operating within a pressurised environment, grounded theory enabled the observation of the human behaviour within the confines of designed live case study events. To obtain accurate data, the researcher utilised a multi-tiered approach which is explained in Chapter 3.

Each approach provided important insights and knowledge into the organisation thus providing a wealth of information that was analysed and coded.[82] By using mixed methods to collect data it allowed the collection of qualitative and quantitative data to help understand the research problem.[83] However, as the research developed and the findings were being used to define military strategic doctrine and training frameworks for the rail industry, the methodology was adapted to suit an Action Research approach.

This change was a result of information on resilience management within the military and railway being scarce, due to a lack of maturity of the subject within the Railway Industry, and due to the military focusing on the development of resilience capability within a hostile environment. The British Standard on organisational resilience was still in development and the commercial sector was focused more on business continuity practices, through the application of the International Standard.[84] This made the

[79]Zebrowski, C., `The Nature of Resilience', *Resilience: International Policies, Practices and Discourses*, Routledge, 2013, available at www.tandtonline.com (accessed 10 May 2015); Davoudi, S., `Resilience: A Bridging Concept or a Dead End?' *Planning Theory and Practice*, Routledge, 2012, available at www.tandtonline.com (accessed 02 July 2015).; Bhamra, R., Dani, S. and Burnard, K., `Resilience: the concept, a literature review and future directions,' *International Journal of Production Research*, 2011, available at www.tandtonline.com (accessed 20 September 2015).
[80]Hagan, F., *Research Methods in Criminal Justice and Criminology*, 4th edition, Massachusetts: Allyn & Bacon, 1997.
[81]Strauss, A. and Corbin, J., *Grounded Theory – An Overview*, 1994, p.273, published in Denzin, N. K. and Lincoln, Y.S., (Eds.), *The Sage Handbook of Qualitative Research*, Sage Publications, London, 1-18. Available at www.cms.educ.ttu.edu (accessed 10 Jan 2014).
[82]Denzin, N. K. and Lincoln, Y.S., (Eds); *The Sage Handbook of Qualitative Research 4th Edition*, 2011, p.6.
[83]Ibid, p.7.
[84]British Standards Institute, *Societal security – Business Continuity Management Systems – Requirements (International Standard Order 22301:2012)*, BSI Standards Limited, London, 2014.

information gathered during interviews, case studies and questionnaires vital to the development of an understanding on how to create a Railway approach to Resilience Management and to inform the development of the strategic doctrine for the UK military. As Michael Patton indicates, these approaches enabled the generation of a substantial amount of raw information that required analysis and codifying exercises.[85] The information was analysed to identify key findings within the resilience management domain, which is discussed in Chapter 6. This approach presented risks, as within the research approach the live case studies also bring into play personal history, biography, gender, social class and ethnicity issues that everyone within the live case studies may have.[86]

Action research enables the qualitative researcher to get closer to the perspective of individuals through detailed interviewing and observation, an approach that quantitative research methods can seldom offer as they are more remote from the event, relying on empirical methods and materials. Qualitative research is also more likely to confront and experience the constraints of everyday social life, as it studies the subjects through an immersive approach, with the researcher becoming part of the event, interacting with the actors as the situation unfolds.[87] While quantitative research sees the world through empirical evidence, mathematical models, statistical tables, graphs and impartial data, qualitative research sees the evidence of the social world, captured through historical narratives, still photographs and first-person accounts as a valuable input into the research process. [88]

Historical research into the military approach to leadership, incident management and training was also accessed, helping to identify certain trends or areas of analysis which could support the current project. Previous questionnaire results were compared to those of this research to identify if there is any uplift in any areas. The questionnaires for the military were developed on the Likert Scale[89] implementing a five-point scale for the participants to respond to, using the Comprehensive Approach framework[90] as the questionnaire basis. This presented a defined model to deliver resilience within a nation state and therefore offered an entity with which military personnel would be familiar. This questionnaire was then reviewed to analyse the perception of individuals involved in Resilience Management within the various military operational elements.

1.12 INVESTIGATION OF MODELS

Currently there are several models which study and propose the life cycle of an incident / crisis / emergency, with many authors proposing slightly differing characteristics.[91] In 2010, in preparation for

[85]Patton, M.Q., *Qualitative Research and Evaluation Methods*, Sage Publications, London, 2002, p.5.
[86]Denzin, N. K. and Lincoln, Y.S., (2011), p 5.
[87]Ibid, p 9.
[88]Ibid, p 10.
[89]A Likert scale is a psychometric scale commonly involved in research that employs questionnaires. For this research it comprised of multiple statements, with individuals asked to grade the statement with a numeric value from 1 to 5.
[90]The Comprehensive Approach was a NATO doctrinal initiative, which was also embedded into UK Government Policy and military doctrine, aimed and enabling a co-ordinated military-civil response to overseas campaigns in order to bring stability to a failed or failing state, utilising all levers of government. The Policy aimed to deliver an integrated approach with commonly understood principles and collaborative processes that enhance the likelihood of favourable and enduring outcomes within a particular situation.
[91]BSI *BS11200:2014* (2014); Ministry of Defence, Joint Doctrine Publication (JDP) 5-00 2nd Edition*: Campaign Planning*, Development, Concepts and Doctrine Centre, UK Defence Academy, Shrivenham, 2013.; National College of Policing, National

the London Olympics, the UK emergency services, led by the police, created the National Decision-making Model (NDM), to help co-ordinate the responses of the emergency services in the event of a major incident. The military also have a decision-making model aimed at the tactical level,[92] or the operational level,[93] depending on the situation and the level of response required.

At the beginning of this research, there was a critical lack of understanding at the strategic and tactical level within Network Rail of the importance of incident management education and training among its frontline management staff, with many having reached a position of senior authority without having received any formal incident management training. The suggestion that individuals should have the cognitive flexibility and readiness to be able to 'think on their feet' and react to the dynamic, unfolding situation in front of them resulted in individuals within the organisation challenging this proposal, with personnel stating that the current situation was working, so why should it be changed? There seemed to be little understanding that crisis management and leadership are intertwined and that both disciplines complement each other and thus affect business continuity and organisational resilience.[94]

Discussions with senior members of Network Rail, supported by research findings, indicated that there had been a major failure to invest in incident management training, with a lack of engagement across the company to develop a corporate approach to the training. The research also highlighted a lack of a Business Continuity framework across the company, which, as Network Rail is classed as a category 2 responder under the CCA 2004, resulted in it also being non-compliant with the Government directive. Furthermore, as seen in the research results in Chapter 5, there was confusion as regards the leader's position and requirements and the fact that from the very beginning the leader should be responding to the immediate threats and uncertainties with the aim of initiating the planning to return the situation to normality as soon as effectively possible. While the team that is supporting them at the Tactical and Operational levels react to the immediate risks and situations, a Route Managing Director must seek options to return the Network to full running order swiftly, with minimum risk to the work force and customers. As the research was distilled into training courses, briefings and the integration of multi-agency training events at the tactical and strategic levels, the desire to incorporate these lessons into the business obtained momentum and support within the higher echelons of the company leadership. These issues are discussed in greater detail in Chapters 5 and 6.

1.13 SUMMARY

This chapter has laid out the thesis structure and has introduced the research topic and the research question that the thesis answers. It has raised the concerns around the current level of industry knowledge with regards to building and sustaining an effective level of organisational resilience, as well

Decision-Making Model; Joint Emergency Services Interoperability Programme (JESIP) Decision Making Model downloaded from www.jesip.org.uk/joint-doctrine.
[92]Known as the Combat Estimate.
[93]Known as the Tactical Estimate.
[94]Demiroz F. and Kapucu, N., `The Role of Leadership in Managing Emergencies and Disasters`, *European Journal of Economic and Political Studies*, 2012, available at www.econpapers.repec.org/article/fatfejeps/ejeps0087.htm. (Accessed on 10 Sep 2015).

as noting the challenges at the political level. It has noted the several strategic resilience challenges that the UK has had over the last two decades, and concerns over the financial costs experienced due to the limited capability to effectively respond to these threats. It has also raised the impact of poor resilience at the organisational level and the social and financial cost this has had on several major businesses. The following chapter discusses in detail the various texts, documents and articles that have been engaged with as part of the research, as well as setting out several terms that are key to developing an effective approach to building organisational resilience. This then leads onto Chapter 3, which discusses the research approach, before the thesis then explores the need for organisational resilience and the development of the Organisational Resilience Model.

CHAPTER 2: LITERATURE REVIEW AND DEFINITIONS

2.1 INTRODUCTION

This chapter reviews relevant literature that has been analysed in relation to the development of an Organisational Resilience management framework. It focuses on building a greater awareness for the reader of organisational resilience and previous research that has been conducted, prior to the discussion around research activities and findings. This chapter will first detail the methodology used before introducing literature and previous research around the concept of organisational resilience. This will lead on to the analysis of key components in building the capability, before looking at how organisations understand their environment, threats and benchmarking of their capabilities.

Internationally the interest in organisational resilience has rapidly expanded as organisations seek to do more than just recover from disruptive events. They seek to learn, adapt and obtain a market advantage. Within the UK, organisational resilience has become an emerging discipline, though there is still confusion and little consensus as to its definition.[95] Though there have been more than four decades of collective research on the concept of resilience globally, it still presents different aspects to individuals in different fields. Several discrepancies in the meaning of the concept arise from different epistemological angles and the associated methodological practices.[96] Research conducted by Braes and Brooks in 2010 identified that the term resilience had been used with increasing popularity across many disciplines, though it is also used liberally in organisations. [97] In the last decade, resilience has attracted attention within organisational and business literature due to greater awareness of the vulnerabilities of organisations to major man-made and natural hazards. Although several academics have now begun to study the subject in detail, there is still a conflict between the academic and the practitioner. Academic research has mainly been focussed on legitimate large-scale businesses, disregarding Small to Medium sized Enterprises or Non-Government Agencies, or those organisations that are neither public nor private entities (3rd Sector organisations).[98]

One group of organisations that are required to develop and maintain a strong resilience capability is the UK military. In response to the ever-increasing complexity of the operating environment, threats and potential crises, the military has sought to develop its internal capability to become self-sustainable in complex situations. Due to globalisation, similarly complex situations regularly impact on civilian businesses, which do not possess similarly robust practices and procedures. Risk analysis, traditionally

[95]Newnham C., Gold or Dust? Creating Resilient Organisations: Predicting a leader's propensity for behaviours that create organisational resilience, MSc Paper, Cranfield University, 2012, p.17
[96]Zhou, H., Wang, J., Wan, J. and Jia, H., `Resilience to natural hazards: a geographic perspective', *Natural Hazards Journal*, Vol 53, Issue 1, 2010, pp 21-41, downloaded from www.link.springer.com/article/10.1007/s11069-009-9407-y on 03 December 2014.
[97]Braes B., and Brooks D., Organisational Resilience: A Propositional Study to Understand and Identify the Essential Concepts, Edith Cowan University, Australian Security and Intelligence Conference 2010, p.14, accessed online on 12 March 2014.
[98]Ayling J., `Criminal Organisations and Resilience', *International Journal of Law, Crime and Justice*, Science Direct, Elsevier, 2009, Volume 37, pp182-196, downloaded 10 February 2018 from www.sciencedirect.com; Witmer H and Mellinger M.S., Organisational Resilience: Nonprofit organisations' response to change, *WORK: A Journal of Prevention, Assessment & Rehabilitation*, vol. 54, no. 2, pp. 255-265, 2016, downloaded from www.iospress.com on 12 Jan 2019.

used for threat identification, identifies system vulnerabilities and grades them by impact / probability. However, traditional methods rarely account for “black swan” (low probability, high impact) events, which can cause significant damage to an organisation. Although organisational resilience can provide a level of prevention and alerting, the implementation of these processes is not well understood or studied.[99] Kayes notes the importance of organisations learning from past events, and from each other, in building their understanding of vulnerabilities and threats. Through learning, an organisation can improve its chances of survival, identifying and adapting good practice from previous disruptive events.[100] While military language is prevalent within business publications, the availability of quality documentation on the military capability transference to the public sector was limited.

A study in Australia in 2001 by Buckle, Marsh and Smale sought to examine how organisations, responding to disaster in the community, helped build local resilience quickly.[101] The study looked at several major incidents that impacted on the Victoria region and how resilience was viewed traditionally, as the qualities that enabled the ability of the community, services, area or infrastructure to detect, prevent, and, if necessary, to withstand, handle and recover from disruptive challenges.[102] Resilience is used by other disciplines as well; engineers apply the concept to materials and technical systems, biologists study resilience in life systems and psychiatrists seek to understand the resilience of individuals and their interaction with social systems.[103] In essence, it is broadly defined as the capacity to resist and recover from loss,[104] though it was used by Holling in 1973 to describe an ecological concept.[105] Resilience has since been adapted by several academics who have sought to apply it to organisations in an attempt to identify a means to create more sustainable business models and understand the capacity organisations and people have to manage their own support and how services can be matched to needs.[106]

Buckle et al describe resilience as the capacity of a person, group or system to withstand loss or to recover from loss, similar to what Braes and Brooks posit.[107] They support the definition of resilience as that of the Oxford English Dictionary (OED); the quality or fact of being able to recover quickly or easily from, or resist being affected by, a misfortune, shock, illness etc; robustness; adaptability.[108] Charlotte Newnham, from Price Waterhouse Cooper (PWC), also utilises the OED definition a year later

[99]Annarelli, A and Nonino, F., `Strategic and operational management of organizational resilience: Current state of research and future directions', *Omega*, Vol. 62 pp 1-18, Jul 2016, downloaded 10 February 2018 from www.sciencedirect.com

[100]Kayes, D.C, *Organisational Resilience: how Learning Sustains Organisations in Crises, Disaster and Breakdown,* Oxford University Press, Oxford, 2015.

[101]Buckle P, Marsh G and Smale S, Assessment of Personal and Community Resilience and Vulnerability, Report EMA Project 15/2000, Emergency Management Australia, Attorney-General's Department, Government of Australia, 2001.

[102]Cabinet Office Civil Contingencies Secretariat Lexicon, Government, Whitehall, London 2013, p.66

[103]Boin A, Comfort L. K., and Demchak C. C., (2010) Designing Resilience: Preparing for Extreme Events, University of Pittsburg Press, p.7.

[104]Zhou, H. et al, `Resilience to natural hazards: a geographic perspective', 2010, pp 21-41.

[105]Holling, C. S., `Resilience and Stability of Ecological Systems'*, Annual Review of Ecology and Systematics Journal*, Vol 4: 1-23, 1973.

[106]Buckle P., Marsh G. and Smale S., `Assessment of Personal & Community Resilience and Vulnerability', 2001.

[107]Ibid, p.5.

[108]Braes B., and Brooks D., `Organisational Resilience: A Propositional Study to Understand and Identify the Essential Concepts', 2010, p.14.

in her MSc Paper which states that resilience is – "the ability of a substance or object to spring back into shape, or the capacity to recover quickly from difficulties; toughness".[109]

Within the civilian sector, research on resilience focuses on the qualities of an organisation, community or individual to cope with, manage, adapt and recover from a disruptive event through the application of certain processes; thereby it is the capability of the organisation to absorb change.[110] While research in New Zealand on Organisational Resilience, through Canterbury University, started in earnest in 2007, Annarelli and Nonino note that most literature on organisational resilience is from 2012 onwards.[111] This thesis reviewed literature from American, Australian or New Zealand as little existed in the UK, emphasising the lack of a body of understanding within this area of UK business management. Eve Coles also reflects on this during her review for the EPC in 2014 when seeking to promote the importance of sharing lessons from major incidents.[112] In 2014 Skills for Justice released their formal review of the state of interoperability and resilience operations within the emergency services. This document supported the findings of Coles that lessons were not being shared.[113] This is reflected by the fact that during the research phase of this thesis, the researcher was also involved in the development of the draft British Standard 65000: Organisational Resilience to raise awareness within the UK commercial and industry sectors. [114]

2.2 LITERATURE REVIEW METHODOLOGY AND FORMAT

This thesis takes a systems approach towards the investigation of the topic of Organisational Resilience, critically evaluating published literature that exists around the topic. The thesis analyses literature published within the following areas: Research design and development; international and strategic relations; military contemporary history; the railway industry; organisational resilience, business continuity; organisational culture; decision-making and problem solving; strategic leadership and management in multi-agency environments; crisis management and risk awareness.[115]

The unit of analysis was a single research paper, book or doctrine publication. The limitation of the research unit was that it had to be open access to the public via library databases or on the internet. For Defence Research Papers (DRPs), the documents had to be accessible if a request was made for them by a reviewing member. No restricted or sensitive documentation was used, due to issues this would have presented regarding accessibility to other researchers and the requirement to restrict the

[109]Newnham C., `Gold or Dust? Creating Resilient Organisations: Predicting a leader's propensity for behaviours that create organisational resilience', 2012, p.18,
[110]McManus, S. T., `Organisational Resilience in New Zealand', *PhD Research Thesis*, Canterbury University, New Zealand, 2008.
[111]Annarelli, A and Nonino, F,, `Strategic and operational management of organizational resilience', 2016.
[112]Coles, E., `Learning the Lessons from Major Incidents: A Short Review of the Literature', *EPC Occasional Papers*, Emergency Planning College, Occasional Papers New Series, EPC, No 10, 2014.
[113]Skills for Justice, *Pathways to Interoperability and Resilience Across the Blue Light Services*, Joint Emergency Services Interoperability Programme, Sector Skills Council, 2014, Executive Summary.
[114]BSI, *BS65000:2014 Guidance on Organisational Resilience*, 2014.
[115]Leigh M., MacFarlane R. and Williams D., *Leadership in Multi-Agency Emergency Co-ordinating Groups*, EPC Occasional Paper No.7, Emergency Planning College, Serco, 2013; UK Cabinet Office Civil Protection Lexicon, 2013, pp. 17, 67; Fox J., `Analysing Leadership Styles of Incident Commanders', *PhD thesis*, Northcentral University, 2009.; Mendonca D., et al, `Decision Support for Improvisation during Emergency Response Operations', 2000, downloaded from www.citeseerx.ist.psu.edu on 12 December 2014; MoD, *JDN 3-11*, 2011.

publication of this thesis. The review begins with an analysis of crisis management literature and how the lessons identified can be used to build an understanding of the need for organisational resilience. It analyses how the Ministry of Defence (MoD) manage national and international crises in support of the wider Her Majesty's (HM) Government political approach, and studies academic and professional articles on how crises emerge and how an organisation responds to the situation. Previous international research on the topic of organisational resilience is reviewed to examine how other nations are approaching the topic and what actions they have taken to address the concerns of organisations. A review of military documentation, UK and international standards, is conducted to help build a more informed picture. Benchmarking and proposed models are also reviewed as part of the methodology which has informed the creation of this thesis.

2.3 INTRODUCING THE CONCEPT OF ORGANISATIONAL RESILIENCE

Within the last five decades, the term resilience has been used freely across a wide range of academic disciplines and in many contexts since it was mentioned by Holling.[116] Originally used by engineers to describe the ability of a material to return to a pre-existing state after being stressed, the term resilience emerged within the ecological sciences, used to describe the capacity of an eco-system to return to its equilibrium after a disturbance.[117] Subsequently researchers have sought to apply the concept to the social sciences to help identify how communities and organisations respond to disruptive events,[118] while recently they have also started exploring military practices such as war-gaming or red-teaming plans.[119]

There has been a strong focus on resilience internationally since the United Nations (UN) launched initiatives under the Hyogo and Sendai frameworks.[120] These frameworks sought to build greater resilience to natural and man-made disasters within communities. The Hyogo framework focussed on the development of communities and nations, while the Sendai agreement sought to set a more forward-thinking attitude of "building back better". Though the principles are aimed at nations, they also provide a strong framework that organisations may consider implementing to build their capability. While the Hyogo framework can be considered as the response and immediate action framework, the Sendai is the recovery and learn element. Together these two frameworks provide a strong template for nations, communities and organisations on how to build their resilience against disruptive events.

[116]McManus S., Seville E., et al, `Resilience Management: A Framework for Assessing and Improving the Resilience of Organisations', *Resilient Organisations,* Research Report 2007/01, New Zealand, 2007, p.2.
[117]Shaw, K., and Maythorn, L., `Managing for Local Resilience: Towards a Strategic Approach', *Public Policy and Administration*, 2012, p.44 downloaded from http://ppa.sagepub.com/content/28/1/43 accessed 24 Oct 2014.
[118]Braes, B. and Brooks, D., *Organisational Resilience:* 2010, p.14; Vogus, T. J. and Sutcliffe, K. M., `Organisational Resilience: Towards a Theory and Research Agenda', *IEEE Systems, Man and Cybernetics 2007 Conference Proceedings* available from www.researchgate.net (accessed 22 Sep 2015); Newnham, C., `Gold Or Dust? `Creating Resilient Organisations', 2012; Smith, D., *Organisation Resilience: Business Continuity, Incident and Corporate Crisis Management*, Institute of Business Continuity Management, 2012, downloaded from www.ibcm.sa.org (accessed on 12 Jan 2014); Boin A. et al, *Designing Resilience: Preparing for Extreme Events*, 2010; Chang-Richards A., Vargo J. and Seville E., `Organisational Resilience to Natural Disasters: New Zealand's Experience,' *China Policy Review* (English translation), Volume 10- 2013, pp 117 – 119, available from www.resorgs.org.nz (Accessed on 10 Sept 2014).
[119]Ministry of Defence, *Red Teaming Guide*, 2nd Ed, Development, Concept and Doctrine Centre, Shrivenham, 2013, p.1-1.
[120]UNISDR, `Hyogo Framework for Action 2005 – 2015, 2005; United Nations Office for Disaster Risk Reduction, International Strategy for Disaster Reduction (UNISDR), *Sendai Framework for Disaster Risk Reduction 2015 – 2030*, United Nations, 2015, downloaded from www.unisdr.org .

In 2004 McManus and Dalziell explored the concept of resilience through a more recognised framework within New Zealand, the 4R's of emergency management; Reduction, Readiness, Response and Recovery. This is like the UK emergency response to disaster, which is based on Preparedness, Response and Recovery. Both approaches focus on resilience being something that occurs post event. While resilience capability is more prevalent during the initial response and ongoing recovery, the effectiveness of the response is based on how well the organisation is prepared, either through education, training, planning, exercising or a combination of these activities. Resilience is a more holistic event than that which McManus and Dalziell initially suggested.

They initially proposed resilience as being inversely proportional to the area 'under the curve' as shown in Figure 2, the ability of the organisation to rapidly reduce the impact of the vulnerability on the business KPIs. For an organisation to demonstrate a level of resilience, it needs to be able to function in the face of disruptive events. This is achieved by managing the size and frequency of the impact of disruptive events on the critical performance factors of the organisation, measured through its Key Performance Indicators (KPIs). The lower the "peak" of the curve, the less the lost performance (area under the curve) the organisation experiences.

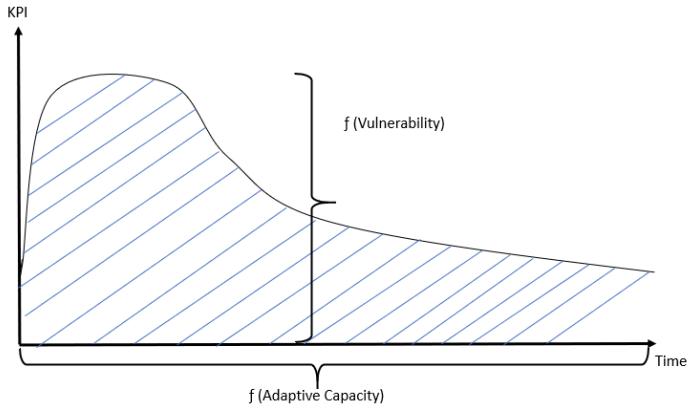

Figure 2: The Resilience Curve. Source: McManus and Dalziell

This concept was further reviewed in 2006 by Seville et al, who discussed that resilience can be the preparation element as well as the response and recovery.[121] They position organisational resilience as `a function of the overall vulnerability, situation awareness and adaptive capacity of an organisation in a complex, dynamic and interdependent system.' The ability of an organisation to complete its core functions in the face of difficult situations is a measure of its resilience capability. They demonstrate the interactions of the various components in Figure 3, where the organisation, through building a greater understanding of its internal vulnerabilities, or risks and hazards that it faces, can develop an adaptive capacity through preparation activities, such as staff development, continuity planning and effective risk management. The investment in building situational

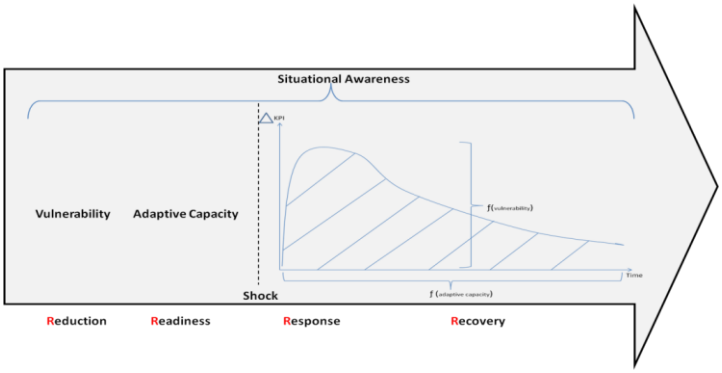

Figure 3: Building Resilience Capability Source: Seville et al

[121]Seville, E., Brunsdon, D., Dantas, A., Le Masurier, J.,Wilkinson, S and Vargo, J., *Building Organisational Resilience: A New Zealand Approach*, Resorgs Research Paper, Department of Civil Engineering, University of Canterbury, Christchurch, New Zealand, 2010. Available from www.resorgs.org.nz, accessed 10 Sep 2014.

awareness to understand the organisation's vulnerabilities and increased adaptive capacity enables the organisation to respond quicker, reducing the curve's peak and length.

McManus, Stephenson and Braes also explored the concept of organisational resilience factors.[122] McManus sought to identify how to build resilience within an organisation and quantify identifiable resilience indicators conducting research on businesses of various sizes within New Zealand. These indicators would provide organisational profile based on information captured and scored. McManus' model, developed in 2008, of Relative Overall Resilience proposed that organisational resilience is comprised of three dimensions; Situational Awareness (SA), Management of Keystone Vulnerabilities (KV) and Adaptive Capacity (AC). Values were then determined for this model by asking a series of 49 questions to help build an understanding of how the organisation was measured against the framework. Table 5 shows McManus' resilience indicators.

Situation Awareness		**Management of Keystone Vulnerabilities**		**Adaptive Capacity**	
SA_1	Roles & Responsibilities	KV_1	Planning Strategies	AC_1	Silo Mentality
SA_2	Understanding & analysis of Hazards and Consequences	KV_2	Participation in Exercises	AC_2	Communications & Relationships
SA_3	Connectivity Awareness	KV_3	Capability & Capacity of Internal Resources	AC_3	Strategic Vision & Outcome Expectancy
SA_4	Insurance Awareness	KV_4	Capability & Capacity of External Resources	AC_4	Information & Knowledge
SA_5	Recovery Priorities	KV_5	Organisational Connectivity	AC_5	Leadership, Management & Governance Strategies

Table 5: McManus Resilience Indicators Framework: Source: McManus

Building upon the work conducted by McManus, in 2010 Stephenson developed her model, based on McManus' work, adding six components to the framework, creating the framework shown in Table 6:

[122]McManus, S. T., `Organisational Resilience in New Zealand', 2008; Stephenson, A., Benchmarking the Resilience of Organisations, 2010; Braes, B. and Brooks, D., `Organisational Resilience', 2010, p.14.

Resilience Ethos					
RE_1	Commitment to Resilience				
RE_2	Network Perspective				
Situational Awareness		**Management of Keystone Vulnerabilities**		**Adaptive Capacity**	
SA_1	Roles & Responsibilities	KV_1	Planning Strategies	AC_1	Silo Mentality
SA_2	Understanding & analysis of hazards, & consequences	KV_2	Participation in Exercises	AC_2	Communications and Relationships
SA_3	Connectivity Awareness	KV_3	Capability and Capacity of Internal Resources	AC_3	Strategic Vision and Outcome Expectancy
SA_4	Insurance Awareness	KV_4	Capability & Capacity of Internal Resources	AC_4	Information & Knowledge
SA_5	Recovery Priorities	KV_5	Organisational Connectivity	AC_5	Leadership, Management & Governance Structures
SA_6	Internal & External Situation monitoring & Reporting	KV_6	Robust Processes for Identifying & Analysing Vulnerabilities	AC_6	Innovation & Creativity
SA_7	Informed Decision Making	KV_7	Staff Engagement and Involvement	AC_7	Devolved & Responsive Decision Making

Table 6: Stephenson Organisational Resilience Framework Source Stephenson

To develop her approach, Stephenson used the process shown below:

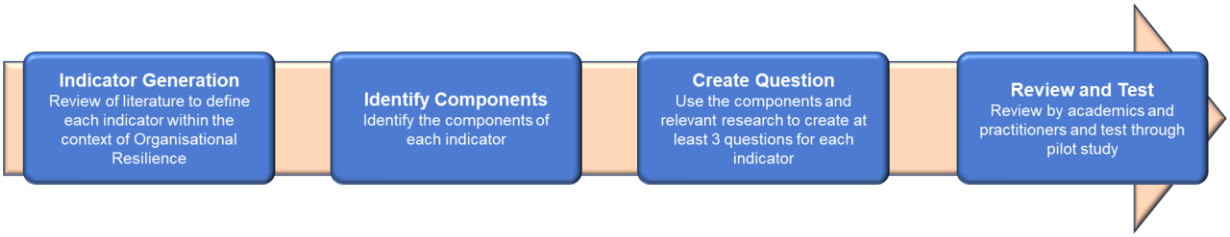

Figure 4: Stephenson's Indicator Development Process Source: Stephenson

The process above, supported by the critical analysis of McManus' framework and recent events within New Zealand, resulted in Stephenson amending the work of McManus to reflect the impact of the importance of a strategic concept of an organisation having a "resilience ethos". The revision of McManus' work resulted in an improved approach to determining an overall measurement of Organisational Resilience, taking into consideration the additional elements identified by her research. This enabled Stephenson, through the revised framework, to build a mechanism capable of benchmarking the Organisational Resilience of organisation. Braes explored the concepts of resilience within individuals and how this can transfer to the organisation. He focussed on the fact that organisational resilience was more of a state of mind for the business, rather than an activity such as business continuity or incident response. Resilience capacity becomes embodied within an organisation's culture, through its routines and practices, providing a base level of capability to respond to a disruptive event. Figure 3 utilises this idea of the resilience curve, looking at it from a disruptive change

point of view, mapped against the New Zealand Civil Defence Emergency Management Act 2002 (The 4 Rs – Reduction, Readiness, Response and Recovery).

Figure 5 reflects the journey an organisation experiences when impacted by a disruptive event, based on the observations of military units in training, preparing for operational deployment. Prior to the impact, the organisation is operating in a Business as Usual (BAU) condition with a certain level of resilience, dependant on the proactiveness of the organisation. This is the resilience gap. When the disruptive event occurs, there is a rapid loss of performance as the organisation seeks to regain control and understand what is occurring. This is then addressed through the implementation of an immediate action, which starts to regain some performance. If the organisation has a business continuity plan, this will take-over, seeking to re-align key personnel to key processes to maintain performance and output. In time, the organisation then moves into the recovery phase, dependant on its own capability. This may mean replacing lost equipment, personnel and customer base, though it may never recover to the BAU levels due to missing capability or reputational damage.

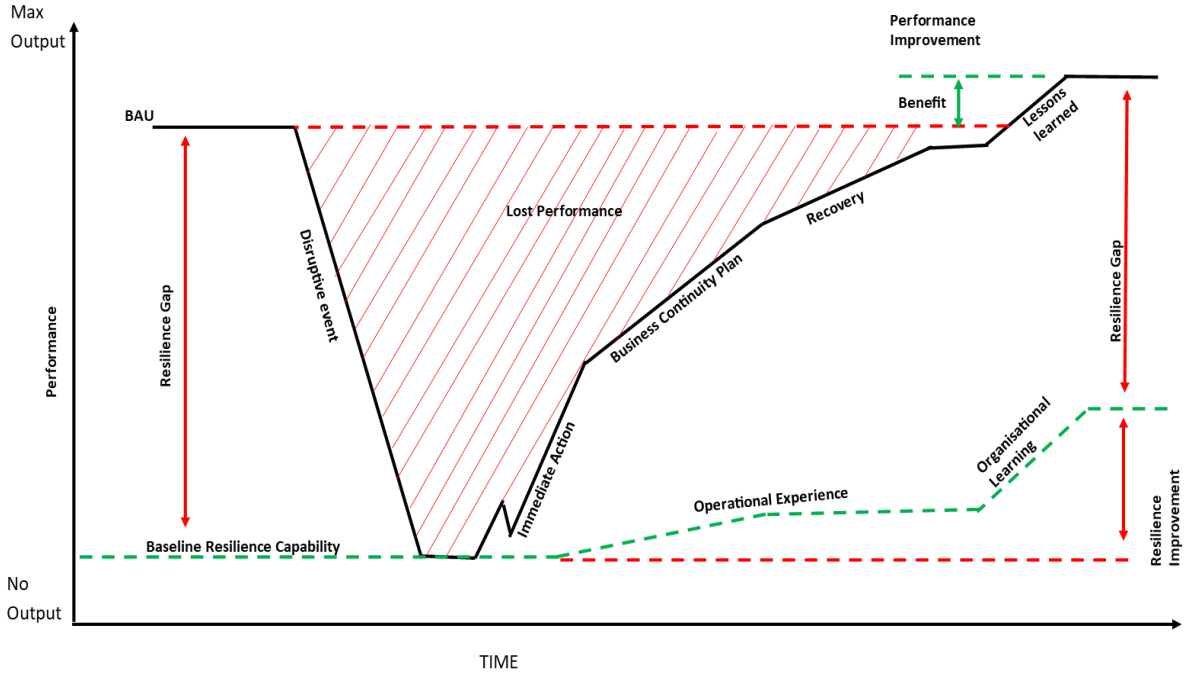

Figure 5: The Resilience Journey. Source: Author

The definitions used by Buckle, Braes and Brooks and Newnham still adhere to the current thought process that an organisation can either recover from the impact of a disruptive event (recovery capability) or resists the impact of a shock or an event (defensive capability). Both these capabilities are of a reactive disposition which is also proposed in the business continuity management discipline when it refers to organisations bouncing back. Unfortunately, this concept is incorrect, as shown in Figure 5. Time has continued to pass, so the environment the organisation is returning to is no longer the same. The disruption will have had an impact on its reputation, financial standing, stakeholders and workforce, and the organisation needs to adjust to this `new normal.'

In 2006, Briggs and Edwards discussed the increasing complexity of the security risks facing businesses and organisations as globalisation changed the structures and pace of corporate frameworks.[123] As businesses are faced with situations of increasing complexity, one response has been to move from functional to matrix structures.[124] Like the battlefields of Iraq and Afghanistan, the threats, such as terrorism, organised crime and information security, have become asymmetric and networked, making each threat more complex to manage.[125] They identified that organisations which successfully build greater resilience to increasing threats focussed on a holistic approach across the business to enhance capability and awareness, which in turn developed competitive advantage.[126] T D O'Rourke also highlights the importance of building awareness to increase resilience, using studies of Hurricane Katrina and the World Trade Center attack as examples of the importance of situational awareness and of understanding both the interdependencies and human aspects of situations.[127] O'Rourke raised the importance of leadership within the task of building organisational resilience. Sheffi examines the impact of failing to understand risks and issues within the supply chain and how the organisation and its suppliers are required to work collaboratively to survive. [128] Sheffi raised that just like military professionals, counter-terrorism agents were more concerned about not knowing their organisation was under attack, rather than a black swan event. This is due to the most successful way of retaining the organisation's resilience is understanding the threat and responding quickly, with the right resources at the right locations. As well as leadership, the culture of the organisation and how it behaves is also critical to the development of resilience to disruptive events.

In 2011 research by Bhama, Dani and Burnard identified that resilience based literature has been conceptual, focussing on developing a static knowledge base for the area through establishing the fundamental concepts.[129] Further research also indicated that there is little consistency in its use in the terms of Organisational Resilience and a lack of common understanding as to the essential concepts prevail.[130] This confusion is evident in David Smith's paper for the Institute of Business Continuity Management, in which he seems to confuse Organisational Resilience with Corporate Security. His work indicates that to obtain Organisational Resilience, an organisation only needs to build a unified Business Continuity Management System (BCMS) to develop resilience, an approach which conflicts with that of the Resilient Organisations group based at Canterbury University, New Zealand.[131] Braes and Brooks highlight the cause as: "Resilience has become a widely used term…(that) has resulted in some re-badging of ideas and claims of processes, management systems, computer software and measurement tools that will all create resilience."[132]

[123]Briggs, R. and Edwards, C., *The Business of Resilience, Corporate Security of the 21st Century*, DEMOS, London, 2006. Available at www.demos.co.uk, accessed on 20 September 2015.
[124]Ibid, p.12.
[125]Ibid, p.12.
[126]Ibid, p.18.
[127]O'Rourke, T. D., `Critical infrastructure, Interdependencies, and Resilience', *The Bridge: Linking Engineering and Society*, National Academy of Engineering, Washington, Volume 37, No.1, 2007, pp 22-29.
[128]Sheffi, Y., `Building a Resilient Organisation', *The Bridge: Linking Engineering and Society*, National Academy of Engineering, Washington, Volume 37, No.1, 2007, pp 30-36.
[129]Bhamra, R. et al, *Resilience: the concept, a literature review and future directions*, 49:18, p.5380.
[130]Braes B., and Brooks D., `Organisational Resilience', 2010, p.14.
[131]Smith, D., Organisation Resilience: Business Continuity, Incident and Corporate Crisis Management, 2012.
[132]Braes B., and Brooks D., 2010, p.14.

Seeking to set the direction for the study and development of organisational resilience, in 2007 Vogus and Sutcliffe defined resilience as: “The maintenance of positive adjustment under challenging conditions such that the organisation emerges from those conditions strengthened and more resourceful.”[133] Within the UK, the Department for International Development (DfID) indicated that in 2011 the UK Government presented disaster resilience as a vital component of its humanitarian and development work.[134] The 2011 paper also identified that the concept of resilience, either at community or national level, was a new area of development for the DfID and therefore it was required to develop the essential skills and frameworks to deliver the capability. Key components required for success were strategic leadership, embracing innovation, accepting accountability and collaborative working with other agencies.

2.4 KEY TERMS AND DEFINITIONS

Throughout this thesis, the core strategic components of organisational resilience are proposed to be culture, vision, strategy and leadership, underpinned by the ability for the organisation to learn and the development of doctrine. These core components support multiple tactical elements which, as a system of systems, delivers an Organisational Resilience management framework, previously referred to as the Systems Approach to Organisational Resilience Framework (SAORF). It is therefore important that these key elements are clearly defined within the thesis to provide a clear understanding of how these components interact within the framework. This part of the thesis will analyse relevant research in each of these areas.

2.4.1 The Impact of Culture

In 1990, Hofstede, Neuijen, Ohayv and Sanders argued that Corporate culture was a “fad” among managers and consultants, seeking to denote and explain the corporate climate.[135] However, the review of 100,000 questionnaires from IBM identified certain social traits within the organisation based on the location of the respondents. These manifested themselves into four categories (Figure 6). Yardley et al explore the importance of culture within business, noting that although culture is a critical element of business success, few professional organisations take the time and effort to fully understand the impact it can have on performance.[136]

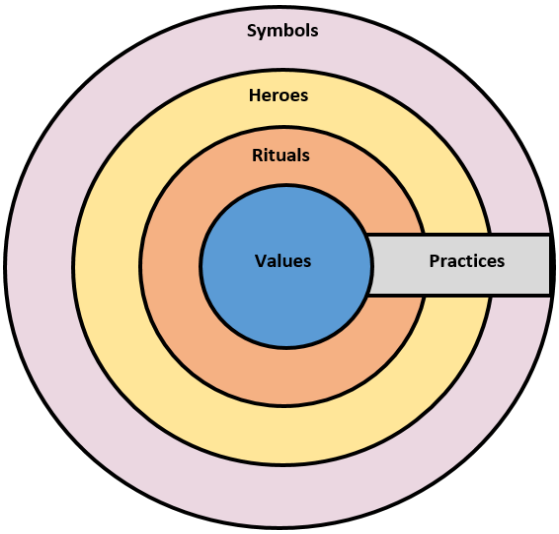

Figure 6: Manifestations of Culture from Shallow to Deep. Source: Hofstede

[133]Vogus, T. J. and Sutcliffe, K. M., 2007, p.3418.
[134]Department for International Development (DfID), Humanitarian Emergency Response Review: UK Government Response, Department for International Development, Whitehall, London, 2011.
[135]Hofstede, G., Neuijen, B., Ohayv D. D. and Sanders, G., `Measuring Organisational Culture: a Qualitative and Quantitative Study Across Twenty Cases’, *Administrative Science Quarterly*, Vol 35 No.2, 1990, pp 286 – 316.
[136]Yardley et al, *From Battlefield to Boardroom*, 2012, pp 97-99.

Figure 6 shows the importance of the values of an organisation, and how certain rituals, mythical organisational heroes and key symbols can arise around those values. These are physically represented and maintained through accepted business practices and activities, thus reinforcing the depth of certain values. While symbols are simple, shallow representations, the development of business rituals, based on certain cultural aspects, embed these aspects deep into the organisational psyche.

King, in his book *Command: The Twenty-First Century General*, analyses how senior military commanders can influence the organisation they command through their personal style, mannerisms and rituals.[137] He analyses successful and failed military leaders, the mechanisms they use to build a corporate identify in their command, and the impact on the soldiers that serve within. He discusses how certain commanders built ingrained values within their units, while others failed, and the reasons behind this. Writing in 2011, King notes the failure of the military strategic leadership culture during the Iraq (2003 – 2009) and Afghanistan (2001 – 2014) campaigns, with a poor understanding of policy, strategic decision-making and effective understanding of turning policy into a cohesive strategy with clearly defined objectives and activities.[138]

British Defence Doctrine states that the most important element that needs to be understood within an operational area is the culture and the historical background.[139] This is also supported by Sinek, whose work has focussed on assisting organisations to increase performance through enhancing the culture and the working environment of the organisation.[140] All conflict, whether within an organisational business setting or on the battlefields of Afghanistan or Iraq, is about people. For the UK military, understanding culture is critical to its success on operations; not just the culture of the people they are fighting against, but also the culture of the local population and the culture of the military itself. In her book, Fox discusses the impact of the military culture during the First World War on the ability of the British Army to innovate and adapt quickly. She reflects that research has observed that the military in peacetime is seen as `rigid and inflexible', yet in war it becomes `decentralised and agile' in its approach.[141] She also challenges the accepted thinking that the analysis of the Army culture against that of a "Learning Organisation" during the First World War is based on a flawed premise, when the focus was being targeted predominately at a single theatre, formation or branch. The analysis needs to be conducted on the organisation as a whole, operating as a multi-theatre, multi-disciplinary entity, and how it adapts and innovates.[142]

[137]King A., *Command: The Twenty-first Century General*, Cambridge University Press, Cambridge, 2019, pp 165-181.
[138]King A., Military Command in the Last Decade, *British Army Review*, British Army, DSDS Bicester, number 151, 2011, pp20 – 31.
[139]Ministry of Defence, *Joint Defence Publication, (JDP) 0-01 British Defence Doctrine*, 4th edition, Development, Concepts and Doctrine Centre, UK Defence Academy, Shrivenham, 2011.
[140]Sinek S., *Leaders Eat Last: Why Some Teams Pull together and others Don't*, Penguin Books, London, 2017.
[141]Fox, A., *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918*, 2018, p.7
[142]Ibid, p.10

Foley's work on Verdun notes the clash in German High Command culture, with the Officer Corps not fully buying into the leadership, vision or strategy proposed, and how it impacted on post-war lesson identification. During the inter-War period, the reform theorists sought to return to the more attractive "von Schlieffen" doctrine, ignoring its short-comings and flaws. This is an important note, as it demonstrates the power of an organisation's culture, even to over-write or ignore fundamental flaws in strategy, creating an organisational level groupthink. This reflects the cultural model at Figure 6, with "von Schlieffen" becoming a cult figure, a heroic leader.[143] Foley also notes that even as early as the late 1800s, forward thinking military commanders were considering the genesis of the "Comprehensive Approach", with Von Moltke being aware of the importance of politicians and diplomats in the New Age, showing a similar understanding to that of pre-Napoleonic theorists.[144] Fox notes the importance of culture and the effect it can have on effective learning of lessons, as well as innovation and adaptation, commenting that in the First World War it depended more on the sponsoring senior officer, than the needs of the organisation. These observations highlight that in the militaries of the early 20th century, there was still a strong reliance on the culture of the individual, and the 'Great Man' or 'Heroic Leader' aspect of leadership, where empowered commanders could decide what occurred within their immediate area of responsibility, regardless of the needs of the organisation.

Culture is also raised by Mansoor, Ledwidge and Tatham in various articles written in the *British Army Review*, with both Ledwidge and Tatham expanding on this topic in subsequent publications.[145] Mansoor notes that the lack of cultural understanding of Iraq by the UK political leadership, underpinned by a failing to grasp the difference between political strategic planning and operational activities, resulted in the incorrect mindset being applied for the Iraq conflict, with the focus being on rapid, kinetically focussed activities, with the absence of any Iraq focussed long-term rebuild and redevelop strategy. The political approach demonstrated a serious lack of understanding of the root causes of an insurgency, the implication of culture, and a misunderstanding of what true COIN campaigns involve, as their reference base were recent benign campaigns such as Northern Ireland and Kosovo. At the operational level, the military campaign was hampered by a "Long screw-driver" culture, with the senior leadership seeking to control the campaign from Whitehall, rather than place the UK Force under direct control of a regional multi-national headquarters. This resulted in the UK Forces being incorrectly resourced, poorly managed and too slow to adapt to the unfolding situation on the ground.[146] In his book *Unwinnable*, Farrell also supports these claims, noting the deployed British Forces in 2006 did not embrace the population centric reconstruction strategy; rather, the organisation went seeking the Taleban, focussed on the destruction of the enemy, rather than the long term vision.[147]

[143]Foley, *German Strategy and The Path to Verdun, Erich Von Falkenhayn and the Development of Attrition, 1870 – 1916*, pp 260 -263.
[144]Ibid, p.265; Heuser, B., `Strategy Before the Word', *The RUSI Journal*, 2010, pp. 39-41.
[145]Mansoor, P., `The British Army and Lessons of the Iraq War', *British Army Review*, British Army, DSDS Bicester, number 147, 2019, pp11-15; Tatham S and Rowland L., `Influence Operations – Do We really Get It?', *British Army Review*, British Army, DSDS Bicester, number 150, 2011, pp 31-37; Ledwidge F., `Missing a Trick – Justice and Insurgency', *British Army Review*, British Army, DSDS Bicester, number 150, 2011, pp 38 – 43.
[146]Mansoor P., `The British Army and Lessons of the Iraq War', *British Army Review*, 2009, pp 13-14.
[147]Farrell, T., *Unwinnable: Britain's War in Afghanistan*, Penguin, Random House, London, 2017

Ledwidge raises the concept of justice, culture and legitimacy within the conflict zone, case studying events in Ireland in the early 20th century and in the Afghanistan campaign. He noted that the creation of a "Shadow State" supported by a deep understanding of the cultural framework and the creation of a "justice" system, seen to deliver "fair" sentences in line with the cultural framework, dispensed by the insurgents, obtained the support and respect of the local population.[148] By aligning the need for justice to be seen to be done quickly, in line with the accepted culture of the population, the insurgent groups were obtaining legitimacy within the eyes of the population, while undermining the efforts of the COIN forces. By using cultural understanding, the insurgent is able to quickly communicate their intent and obtain the support needed to operate within the region; this ability to influence towns and regions at such a level makes it increasingly difficult for an external counterinsurgent force to operate effectively.

Ledwidge expands on the issue of the immaturity of cultural understanding by the UK within in this context in his book, *Losing Small Wars*, noting that there was a level of cultural mistrust of Western forces, especially the British, in Iraq and Afghanistan, due to previous military campaigns.[149] This was not fully understood or considered during the campaign planning phase of the Iraq conflict, with little consideration given to how to rebuild the nation's political, technical and social infrastructure post conflict. The political leadership had failed to learn the lessons from previous campaigns on how to rebuild a nation after regime change; he uses a case study of post-war Germany as a clear example.[150]

Tatham comments on the importance of culture and influence in building a successful platform to win the support of the population. Writing in 2011, he utilised his knowledge from Influence Operations (colloquially known as Hearts and Mind operations) to highlight the importance of understanding the population, their motivators, concerns and behaviours, and how this is affected by their cultural framework. He notes that this approach of engaging with the population on a cultural and psychological level, known as Target Audience Analysis, was not a recognised approach during the early stages of the Iraq or Afghanistan campaigns.[151] Yet this concept of Target Audience Analysis is recognised in business, with organisations investing large quantities of funds to have feedback from customer groups on what really matters to them. The process, to a lesser degree, is also witnessed during the run up to political elections, with each political group seeking to understand what will influence various audience groups. Tatham recommended in 2008 the need to look at the importance of strategic communications in developing the correct cultural understanding when operating within COIN operations.[152] In 2008 he noted that organisations that focussed on building effective strategic communication frameworks would often obtain the advantage; especially in an asymmetric campaign.[153] Farrell comments on this, noting that while at the tactical level the military innovated or adapted quickly to build a cultural understanding, the gathered intelligence was rarely recognised at the operational or strategic levels, with the leadership supporting a corrupt government, despised by the population. At a strategic and political level there was

[148]Ledwidge F., `Missing a Trick – Justice and Insurgency', *British Army Review*, 2011, pp 38-39.
[149]Ledwidge, Losing Small Wars, Yale University Press, London, 2012.
[150]Ibid, p. 21.
[151]Tatham S and Rowland L., Influence Operations – Do We really Get It?, *British Army Review,* 2011, p.31
[152]Tatham S., *Strategic Communication: A Primer*, Advanced Research and Assessment Group, Defence Academy of the United Kingdom, Shrivenham, 2008.
[153]Ibid, P.1.

a significant failure of cultural understanding, which severely impacted on situational awareness of what the UK was entering into in 2006, emphasised by the government telling reported in 2006 "we would be perfectly happy to leave in three years not having fired a shot because our job is to protect the reconstruction."[154] According to the account of 16 Air Assault's Brigade deployment after this statement, they fired half a million rounds of ammunition and 30,000 canon rounds.[155]

At the tactical level, Simpson, having served within a frontline unit in 2010, discusses the initial absence of cultural understanding and tools to assist the deployed headquarters to obtain situational awareness of the population they were operating among.[156] He noted that resources were regularly not being targeted to deliver the correct effect, usually caused by the military units not understanding what 'effect' would best destabilise the local insurgent groups. There was limited thought or analysis given to the engagement, on a cultural level, with the population to help clearly identify the drivers for change. Though in 2008 Tatham had produced his work on Strategic Communications as part of the Advanced Research and Assessment Group (ARAG), there was little evidence of this practice being employed effectively. Simpson expands on the failings of understanding cultural frameworks in his book War *From the Ground Up*, where he discusses in detail the issues faced when operating within contemporary operating environments.[157] Fox also notes that organisational culture can have a detrimental impact on the ability to manage change effectively, with individuals or collective groups being able to raise barriers to much needed advancement.[158] King posits that in The First World War the British Army learned to innovate in spite of the culture of the British senior leadership; he remarks that most of the learning was from the bottom up, happening at the frontline of the conflicts, often independent of the central command structures.

Hofstede describes culture as "the collective programming of the mind that distinguishes the members of one group or category of people from others.[159]" It is about their beliefs, fears, social structures, family, ideological ties and narratives.[160] Elliott discusses the impact of organisational culture when analysing the decision-making process used by senior military commanders during the Iraq and Afghanistan campaigns. An attitude of carefree acceptance of facts without challenging the limited intelligence to gain greater clarification resulted in a groupthink decision to deploy into Afghanistan while committed in Iraq.[161] Farrell, in his book *Unwinnable*, also discusses the issue of when organisations, and the population, start identifying individuals as heroic figures in their culture. In discussions with Taleban leaders, he highlights that many members, along with 1000 respected clerics, requested that

[154]Farrell, T., *Unwinnable: Britain's War in Afghanistan*, 2017, p168. Original quote from BBC News, 26 April 2006, `UK Troops to Target Terrorists,' available at www.bbc.co.uk.
[155]Farrell, T., *Unwinnable*, 2017, p.168; Fergusson, J., *A Million Bullets – The Real Story of the British Army in Afghanistan*, Corgi Press, 2009.
[156]Chandler S.W.M. and Simpson E., A Post-Operational Review of the Shade Shift Approach to COIN, *British Army Review*, British Army, DSDS Bicester, number 150, 2011, pp 15-22.
[157]Simpson E., *War From the Bottom Up*, C. Hurst and Co Publishers, London. 2013.
[158]Fox, A., *Learning to Fight, Military innovation and Change in the British Army, 1914-1918*, 2018.
[159]Hofstede, G., `Dimensionalising Cultures: The Hofstede Model in Context', *Online Readings in Psychology and Culture,* International Association for Cross-Cultural Psychology, 2011.
[160]Ministry of Defence, *Joint Doctrine Note (JDN) 4/13: Culture and Human Terrain,* Development, Concepts and Doctrine Centre, UK Defence Academy, Shrivenham, 2013.
[161]Elliott, C. L., *High Command: British Military Leadership in the Iraq and Afghanistan Wars*, Hurst and Company, London, 2015, pp.140 – 145.

Bin Laden be asked to leave Afghanistan immediately after the World Trade Center attack; they were ignored, due to Bin Laden having become a cult figure within the nation, standing up against the oppressive West.[162] By becoming captured by the culture, the Taleban leadership lost situational awareness of the wider picture, resulting in the Afghanistan War and the removal of the Taleban government.

By understanding the impact of culture on an organisation's strategy and objectives, the leadership team can utilise this beneficially. Farrell's review of the British activity in Afghanistan, during operation Moshtarak,[163] in 2010, demonstrated how the military commander understood the complexities of the cultural situation, particularly around the legitimacy of the local security forces.[164] By replacing the local, corrupt forces with well trained, out of region trained troops, the risk was effectively mitigated, while maintaining an Afghan involvement in the campaign, key to building trust within the region. Culture can also impact the psyche of an organisation; the UK military headquarters for Moshtarak, was conceived solely for the purpose of managing a multi-national organisation, unlike the regular rotation of headquarters through different tasks. This created a certain cultural understanding of the situation within Afghanistan, with staff understanding their roles, expectations and building situational awareness.[165] This approach, though localised in its application, demonstrated that the concepts raised by Tatham and Simpson from previous campaign observations were now starting to be applied effectively and delivering tangible results. However, as discussed in several publications, the ability of the organisation to innovate and adapt at the tactical level was negated by the failure to embrace and support the learning at the strategic level. The strategic military/political leadership failed to grasp the situation and support accordingly.[166] The lack of cultural understanding, joint vision, political guidance and strategic military leadership resulted in campaign failure for the UK; in 2013 the four districts in Helmand `secured' by the British were ranked as the most violent in Afghanistan.[167]

Culture also impacts on organisations through the creation of certain habits or traits that gradually become the norm. The British Army is a good example of cultures and sub-cultures and the intense rivalry that this can create. Fox notes that in 1910 -1914 the culture of the Army was focussed on the individual, with principles based on an Officer Corps that was heavily drawn from the landed gentry, an ineffective General Staff and highly distributed leadership, which impacted on its effectiveness to standardise protocols and circulate learning effectively; it was, in essence a collection of franchises

[162]Farrell, T., *Unwinnable: Britain's War in Afghanistan*, 2017, pp. 53-57.
[163]Operation Moshtarak was an international military campaign to retake several Afghanistan towns bak from the Taliban. The British involvement was focussed on the Nad-e-Ali region, working in partnership with Afghanistan security forces.
[164]Farrell, T., `Appraising Moshtarak', *RUSI Briefing Note*, Royal United Services Institute for Defence and Security Studies, London, 2010.
[165]Ibid, p.3.
[166]Farrell, T., *Unwinnable: Britain's War in Afghanistan*, 2017; Ledwidge, Losing Small Wars, 2012; Tatham S and Rowland L., Influence Operations – Do We really Get It?, *British Army Review*, 2011, pp 31-37; Mansoor P., `The British Army and Lessons of the Iraq War', *British Army Review*, 2009, pp 13-14.
[167]Ledwidge, F., *Investment in Blood: The True Cost of Britain's Afghan War*; Yale University Press, London, 2014, pp. 230-231.

which operated depending on what the senior officer determined was correct.[168] There also existed an inter-service rivalry with the Royal Navy for funding, which still exists today.[169]

The awareness of the culture is critical within an organisation, whether it is on the battlefield, in the boardroom or on the shop floor. As the literature has shown, failing to understand the culture of the organisation, as witnessed in Foley's work, can lead to a catastrophic dysfunctional leadership group. Investing in the wrong symbols, heroes or rituals can also damage an organisation. Culture is developed and maintained by the leadership group; if it is toxic, then it is the role of the leadership group to address it. By understanding the culture of the competition, a leader can identify competitors' vulnerable points that can then be exploited; likewise, by understanding the vulnerable points of their organisation, it is possible to build mitigation mechanisms to protect them. As shown in the various examples above, individuals who embrace the organisation's culture can quickly influence the decision-making and productivity of an organisation. The use of well-placed communication frameworks can build a positive environment, aligned to the vison of the organisation. However, failure to link tactical activities and successes to the strategy, and align it to the organisation's culture, can rapidly result in reputational and / or performance issues, as the British experienced in the recent operational deployments.

2.4.2 The Importance of Vision and Strategy

The importance of having a vision and a means to deliver the vision is critical to delivering success, either in business or in military operations. Research within the field of resilience has identified that a successful organisational response is critically reliant on the ability of the leadership team to understand the situation and respond accordingly, creating natural organisational agility.[170] In today's complex, globalised and increasingly inter-dependent environment, examples of `effective strategy' at the highest level have been hard to find.[171] Simon Sinek comments on the importance of the vision of the organisation, or the "why" it is in existence. He uses several case studies to note the importance of developing the correct vision for the organisation, then building the culture to deliver the vision. This in turn enables the creation of and effective strategy for the leadership to deliver; the "why, how and what."[172] This is the equivalent of the military's Ends (Vision), Ways (Method) and Means (Resources), noting the importance to have the vision (end-state) as the core element.

The English word strategy is based on the Greek word *strategia*, which is based on the Greek word *strategos*, meaning "The General's Way". *Strategia*, which was translated into Latin as *Belli* (strategy) or *ars Imperatoria* (generalship), was the function and skill of the General, or by extension the art of war.[173] Research by Heuser posited that the concept of strategy within the Western World had been

[168]Fox, A., *Learning to Fight, Military innovation and Change in the British Army, 1914-1918*, 2018, pp 20, 29, 47, 67,249
[169]Ibid, p.31.
[170]Newnham, C, `Why Resilience is not the Future Business Continuity', *Business Continuity Management Conference 2013*, available from www.bcm2013.com/papers/StreamC/1CharleyNewnham.pdf, accessed on 20 Nov 2014; Zebrowsiki, C., The Nature of Resilience, 2013; Davoudi, S., `Resilience: A Bridging Concept or a Dead End?', 2012; Bhamra, Dani and Burnard, Resilience: the concept, a literature review and future directions, 2011.
[171]Royal College of Defence Studies, *Thinking Strategically*, Defence Academy of the United Kingdom, Shrivenham, Ministry of Defence, 2012, p.1.
[172]Sinek, S., *Start With Why*, Portoflio Penguin, London, 2009; Ibid, p.156.
[173]Royal College of Defence Studies, Thinking Strategically, 3rd Edition, Defence Academy of the United Kingdom, Shrivenham, 2012 pp. 4 -10.

corrupted through the Napoleonic era. Prior to this age. the true concept of it having originally proposed as “the science of the general”, focussed on the individual knowing all the requirements of statecraft, including medicine, geography and fortifications.[174] Only during the Napoleonic ages did it become distorted to focus solely on achieving a purely military victory, though post-1945 the concept has now again become broader and focussed on the utilisation of all tools available to the State to achieve success.[175] She notes that texts of the pre-Napoleonic era that discussed strategy had obtaining and sustaining lasting peace as the focus, recognising that a military victory alone was unlikely to led to peace, rather that there needed to be extensive focus on post-conflict governance, justice and cultural understanding.[176]

The research and interviews conducted by the Royal College of Defence Studies (RCDS) identified a fundamental gap between strategy design and implementation to deliver results. The findings, supported in 2016 by a study by Barclays, identified that the complexity of the modern environment impacts on the ability to maintain a long-term view.[177] The inclusion of the workforce to deliver the strategy also increases the difficulty. Across industry, though the initial focus of strategy was the delivery of an intellectual construct linking your current position, actions, resources and where you wanted to be tomorrow, recently the use of `strategy’ has becomes focussed on the delivery of short-term objectives, rather than the delivery of the bigger picture.[178] Colin Gray proposes that the purpose of `Strategy’ is to convert policies into action through the effective alignment of Ends, Ways and Means. Those that do this are strategists, with those that are involved in delivering the implementation being the strategic leaders of the organisation, delivering the actions holistically across the organisation to achieve the desired outcome, in line with the political intent.[179] The RCDS states that `Policy’ is “a course of action adapted and pursued by a government”.[180] Gray supports this concept, though remarks that most governments tend to neglect giving the correct level of attention to its development.[181]

Steven Jermy describes `policy’ in greater detail, defining it as “a government (or organisation’s) formed position on an issue, situation or problem, including what political objective the government wishes to achieve, what resources it is prepared to commit to the pursuit of that objective and what course of action it seeks to follow.”[182] Given that Organisational Resilience is both a political and institutional desired outcome, this thesis proposes to use Jermy’s description as it provides the best context for the analysis.

Writing in 2010, Porter posits that Britain has lost the capability to deliver strategy coherently or effectively, with the ability to orchestrate the Ends, Ways and Means poorly taught or understood. He

[174]Heuser, B., `Strategy Before the Word’, *The RUSI Journal*, Royal United Services Institute, Routledge, London, Volume 155 Issue 1, 2010, pp. 36-43.
[175]Ibid, p.38.
[176]Ibid, pp 39-41.
[177]The research involved 153 managers and 2055 employees between July – August 2016.
[178]Royal College of Defence Studies, Thinking Strategically, 3rd Edition, 2012, p.8
[179]Gray, C. S., *The Strategy Bridge*, 2010, p.15.
[180] Royal College of Defence Studies, *Thinking Strategically,* 2012, p.5
[181]Gray, C. S., *The Strategy Bridge*, 2010, p.28.
[182]Jermy, S., *Strategy for Action – Using Force wisely in the 21st Century*, 2011.

notes that the 2008 and 2009 National Security Strategies lacked any clear strategic direction; they were full of description of threats, issues and required responses, but limited in a coherent long-term approach. He noted there was a lack of strategic understanding at the Political level, and limited evidence of understanding of the concept within the senior military leadership.[183] Both Porter and Heuser note that the study of Strategy within the 20th Century literature has become more abstract, with it being delivered more by business schools than by universities and military education establishments.[184]

As part of delivering a strategy based on `Joint Action' to deliver long-term effect, there needs to be the blending of activities to create the correct environment (Figure 7). By mixing the use of movement, kinetic activity and influence tasks to isolate the enemy from the population, in theory the counterinsurgent can then build engagement, support and legitimacy, enabling the implementation of post-conflict reconstruction. To do this effectively requires strategic leadership support, guidance and investment, as it will require both military and civilian organisations to deliver it effectively.

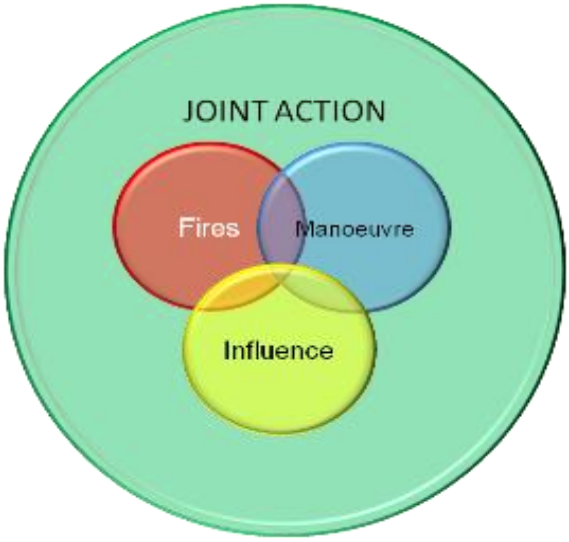

Figure 7: Joint Action Model Source: MoD

King supports the concerns raised about the lack of strategic leadership at both the political and military command level when it comes to delivering effective strategic guidance. His posits that by 2010 the British Command system had become overloaded at the senior officer level, removing clear accountability for decisions. He highlights the strategic failure of the executive leadership of the military to clearly understand, or follow, the planning guidelines for the commitment of military to conflict, noting that the political decision to deploy military forces into Afghanistan was based on flawed military advice.[185] Both North and Ledwidge also remark on the decline of effective military strategy, while Milevski, writing in 2011, posits that the Western governments as a collective had lost the ability to plan at the strategic level. He supports the observations made by King a year earlier that there was no coherent strategy in Iraq or Afghanistan, just a series of loosely linked operational or tactical activities.[186]

The turbulent events occurring in the Middle East and the positions that the UK has taken towards the relevant actors involved in these situations has increased the threat of terrorism within the UK. The National Risk Register indicates that the home-grown threat and the potential for a "spectacular" attack continues to grow more ominous, including the possible use of chemical, biological or nuclear devices

[183]Porter P., Why Britain Doesn't Do Grand Strategy, *The RUSI Journal*, Royal United Services Institute, Routledge, London, Volume 155 Issue 4, pp. 6-12.
[184]Ibid, p.7; Heuser B., `Strategy Before the Word', *The RUSI Journal*, 2010, p.36.
[185]King A., Military Command in the Last Decade, *British Army Review*, 2011, p.21.
[186]North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, Continuum, London, 2009; Ledwidge, Losing Small Wars, 2012; Milevski, L., `A Collective Failure of Grand Strategy – The West's Unintended Wars of Choice', *RUSI Journal*, Vol 156 No.1, Routledge, London, 2011, pp 30 – 33.

in crowded areas.[187] This placed several rail industry sites in the "At Risk" section. Other risks that could impact the railway are potential catastrophic natural weather events, similar to what the railway was forced to contend with in the winter of 2012 – 2013,[188] as well as the potential events that could affect the rail network, such as bridge or tunnel collapse, rail crashes, train derailments, level crossing strikes, migrant ingress, debris on the track due to strong winds[189] and suicides. To address these potential risks, there is the need for a robust incident management strategy to enable the military[190], the emergency services and rail industry to work in a collaborative manner, to help ensure strong business resilience to the wider impact of the event.

At the organisational level, there is need to possess a strategy, delivered through strategic leadership, to build and maintain the resilience of an organisation. Strategy is seen in business as a disciplined effort to produce fundamental decisions and actions to shape the direction of an organisation[191], often conducted in a dynamically changing environment. Strategy often brings together information analysis, for-ward planning, objective thinking and subjective evaluation of goals and direction of the organisation, aligned to the vision set by the leadership team (Figure 8). The strategy is the translation of the vision, the long-term outcome set into several interconnected activities across the organisation to ensure the delivery of the vision, and the allocation of available resources within the institution.

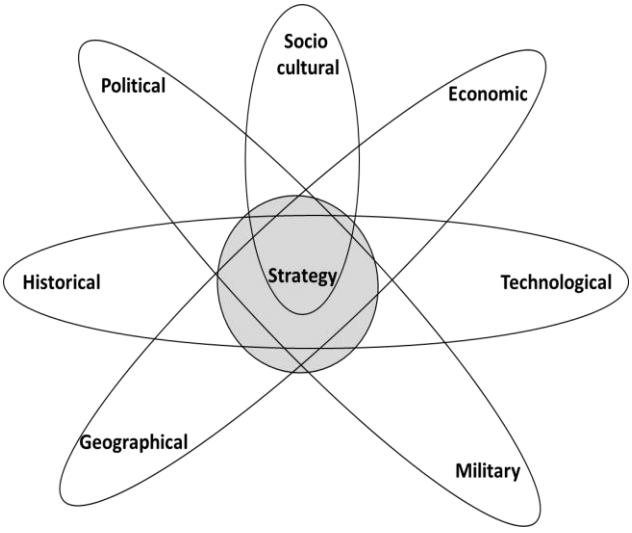

Figure 8: The Contents of Strategy. Source: Gray

The act of delivering the strategy is often termed Strategic Management, which encompasses the planning, implementation, evaluation, amendment and, if required, re-alignment of the activities against the strategy to deliver the vision. Therefore, strategy and strategic management are holistic activities spread across the organisation; just like organisational resilience. The 2016 Barclays research identified that an organisation would take three strategic decisions, on average, a year, with over 70% of interviewees noting that it was easier to make the decision than to implement it. This reflects Poister's

[187]Canton, L.G., *Emergency Management Concepts and Strategies for Effective Programs*, New York: John Wiley & Sons, 2007; Lindell, M. K., Prater C. and Perry, R. W., *Introduction to emergency management*, Hoboken, NJ: John Wiley & Sons, 2007.
[188]During this period the weather contributed to the collapse of 144 earth works (ORR Report Monitor 2013), resulting in rail journey delays, long term disruption and train derailments.
[189]The effect of the St Jude storm brought the railway to a virtual halt on the 28th Oct 2013. The debris across East Anglia took three days to clear of the track, forcing the running of the railway at a reduced level.
[190]Though not tasked under the Civil Contingencies Act specifically, the military can, at times, move to deliver assistance in major incidents where there is risk of large loss of life, or threat of major damage to critical infrastructure.
[191]Poister T.H. `Strategic Planning and Management in State Departments of Transportation', *Internal Journal of Public Administration*, Volume 28, 2005, pp. 1035-1056. Available at www.tandfonline.com. Downloaded 12 May 2017.

research, which noted that in a Chief Executive workshop in 2000, there was a consensus that strategy breaks down at the delivery stage.[192]

To enable the correct development of a coherent strategy, it is important to understand the differentiation of strategic action (implementing the strategy) and strategising (the planning, theorising of strategy). It is critical that an organisation can move freely from one to the other, enabling the organisation to be flexible when faced with a major disruptive event, moving between planning and action with minimal impact to its operational effectiveness. Based on the military's Joint Action model,[193] strategy can therefore take place in several interacting domains, which together result in the effective delivery of strategic intent (Figure 9). It is important that the leadership would also accept and understand the impact of an organisation's culture, as that will have a specific impact on the strategy created, therefore resulting in a unique approach for that specific organisation.

For the strategic action model (Figure 9), structure implies not only the physical structure of the company, but also how information, management, leadership and the relevant functional departments interact. Structure also includes how the company develops and delivers strategy to enable it to move forward, while culture can be described as the perception of what the organisation classes as acceptable behaviours. Within the military and business, culture is also the history of the organisation and the various traditions, rituals and myths that have been built over time, which creates a legacy. For example, Network Rail's history is the legacy that has been left behind from the British Rail and Railtrack days, and the myths of the organisation that have developed since its conception in 2003.

Figure 9: Strategic Action Source: Author

It is important that, in a collaborative strategic environment, when reacting and recovering from a major disruptive incident, there is a thorough understanding of the components of the strategic action model and how they interact with each other. This understanding will then enable the organisation to respond more effectively, improving operational performance and reputational standing among its stakeholders. To enable this, senior military commanders must understand the strategic priorities of government in order to identify possible incidents, emergencies or crises. They then need to plan against the worst-case situation and develop contingency plans to be able to implement, prior to such an event taking place. Regular strategic horizon scanning, with direction to the training and development of the military

[192]Poister T.H. `Strategic Planning and Management in State Departments of Transportation', 2005, p. 1037.
[193]Ministry of Defence, Joint Defence Publication 3-00: Campaign Execution, 3rd edition, Development, Concepts and Doctrine Centre, 2009, pp 3-1 – 3-6.

capability, is critical to the defence of the UK and its borders. Although the UK's geographical position is more physically remote than those of the other European states, allowing increased security through strict border controls, the UK is a prominent international player that has often been involved in critical decisions in the world arena, as well as involvement in the creation and management of international stability and law. [194]

In this context, the design, development, delivery and sustaining of Organisational Resilience is a strategic activity. Resilience is not simply about 'bouncing back' or 'bouncing forward'", rather it is about negotiating disruptive events and thriving on uncertainty, while focussing on the development of the entity against an infinite timeline.[195] It is critical to be in place to enable an organisation to exist long enough, utilising all available options to deliver the strategic outcome that is required for success. At the strategic level, managed by the executive board, it is not just about the resources, the financial capability or the relevant structures being in place, though these all assist the process. Resilience is not something that can be achieved by a single organisation acting in isolation.[196] There is a need to understand the supply chain and the customer focus. It needs to be dynamically aware of Porter's five forces and adjust accordingly to maintain its survival (Figure 10). Porter's model looks at the attractiveness of an organisation to the market against its rivals, then factors in the threats that the organisation may face to maintain its market position. This may be the threat of a new arrival, the threat of another organisation delivering their services, or the bargaining power of suppliers or buyers. These five forces create a strategic micro-environment that within which the organisation must operate to maintain market effectiveness.

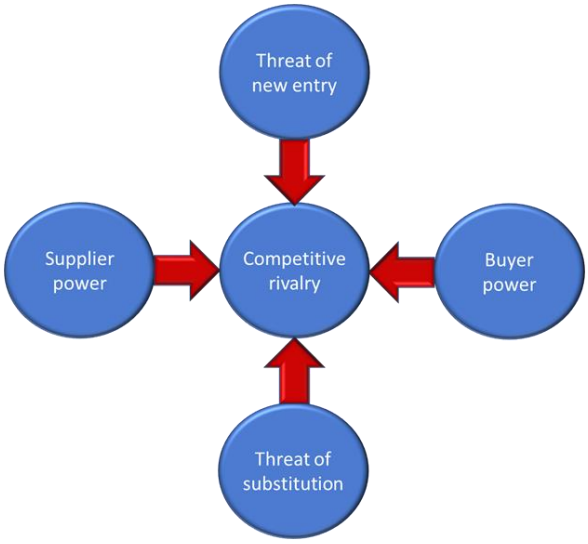

Figure 10: Porter's Five Forces. Source: Porter

The consequences of getting resilience management wrong can have dramatic effects, especially at the strategic level. One area that is focused upon by strategy theorists is the ability of the individual to possess an independent, free and creative spirit that steps outside of regular routine and practices. The ability to identify and manage a complex problem or an unfolding crisis requires flexibility of mind, a systems-based approach to thinking, and the ability to see beyond processes and procedures. The strategic leader is also required to learn and apply knowledge and experience from previous events to a new strategic circumstance. Such capability sets them apart from others within the organisation. The importance of leadership within the organisation is discussed in the next section.

[194]A few events which have caused security concerns were the support for the 1986 strike on Libya by US warplanes, the Falklands War, the support for action against Iraq in 1991 and 2003, the support of US action against Afghanistan in 2001 and the push for the use of force against Serbian forces in Kosovo in 1998/99.
[195]Newnham, `Gold or Dust?', 2012.
[196]Seville, E. et al, *Building Organisational Resilience: A New Zealand Approach*, 2010, p.2.

2.4.2 The Role of Leadership

One aspect of military service that has been researched and investigated for centuries is the concept of leadership under pressure, with the belief that by understanding the impact the leader has, the organisation stands a greater chance of success. As mentioned earlier, Heuser notes that pre-Napoleonic writers had a better understanding of the interaction of the leader (General) and the delivery of effective strategy. Recent authors have sought to deconstruct leadership to understand the fundamentals, observing how successful or failed leaders have utilised it.[197] Leadership itself is an intangible, that cannot be replaced through a technological tool due to the impact that interpersonal activities, between the leader and the followers, can have on the morale of the group.[198] Recent military campaigns within Iraq and Afghanistan have demonstrated that even though the Western nations have the most technologically focused military, the campaigns still failed to deliver success due to serious leadership failures at multiple levels.[199] General Omar Bradley noted that the successful leader does not need to force his presence; instead their influence is felt through actions and decisions. The assessment of a leader is through their ability to inspire their followers.[200] In business, companies are considered on the quality of their leadership and direction.[201] In his piece in the Parameters Journal, Bradley refers to the importance of leadership in business. A good leader is aware of the needs of the organisation without being a specialist; the skill of leadership is being able to identify and enable the specialists to carry out their respective roles.[202]

Leadership is a concept that has exercised academics. They have sought to scientifically determine the process to better understand it, debating whether it is a skill or an innate behaviour.[203] In the process they lose sight of the meaning, seeking to unpick the activities and create a narrow set of styles, rather than understand the impact as well as document the various styles used by successful and unsuccessful leaders. This is very similar to culture and charisma.[204] Doh notes that research since 2003 has identified that leadership has become a major focus within business schools, with many courses developed to promote leadership development and capability. Doh's research indicated that leadership principles and application can be taught, though the research highlighted that good leaders have something else to add through personal interactions, inspiring others and the ability for effective decision-making. It noted that leadership is as much about processes and activity as well as emotions,

[197]Adair J, *Effective Strategic Leadership*, Pan Books, London, 2010; Sinek S., *Start with Why: How Great Leaders Inspire Everyone to Take Action*, Portfolio Penguin Books, London, 2009; Sinek S., *Leaders Eat Last: Why Some Teams Pull together and others Don't*, Penguin Books, London, 2017; Grint K, *Leadership - Limits and Possibilities*, Palgrave Macmillan, Basingstoke, 2005; Elliott, C. L., *High Command*, London, 2015; King A., *Command: The Twenty-first Century General*, Cambridge University Press, Cambridge, 2019, pp 165-181.
[198]Bradley, O, `Leadership', *Parameters*, Journal of the US Army War College, Volume 1, 1972, pp2 – 8. Available at https://ssi.armywarcollege.edu/pubs/parameters
[199]Ledwidge, Losing Small Wars, 2012; King A., *Command: The Twenty-first Century General*, 2019; North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, 2009.
[200]King A., *Command: The Twenty-first Century General*, 2019, pp 165-181; Bradley, O, `Leadership', *Parameters*, 1972, pp2 – 8
[201]Bradley, O, Leadership, Parameters, 1972, p. 2.
[202]Bradley, O, Leadership, Parameters, 1972, p. 4.
[203]Doh, J.P., `Can Leadership be Taught? Perspectives from Management Educators', *Academy of Management Learning and Education*, 2003, Vol 2 No.1 pp. 54-67.
[204]Westley F and Mintzberg H, `Visionary Leadership and Strategic Management', *Strategic Management Journal*, John Wiley and Sons, 1989, Volume 10, pp. 17-32. Available at www.onlinelibrary.wiley.com

attitude and personality.[205] Doh's discussions also noted that successful leadership is hard to break down into specific elements, with it often being easier to deconstruct leadership failures and identify the types of failures and reasons why such failures occurred.

A sub-set of leadership is the art of strategic leadership. Research has previously focused on the delivery of leadership at the senior level of an organisation, with conventional wisdom and business literature focussing on leadership delivered by senior leadership teams or chief executives. Shrivastava and Nachman challenged that belief, focusing on the act of strategic leadership within an organisation. The study identified that while senior managers are key to the decision-making processes, individual managers across the organisation's hierarchy are also involved in the leadership of the organisation through their actions and activities.[206] Their research identified that strategic leadership is a function of the organisation, with senior managers giving direction, but also understanding the impact of culture, organisational structure and the interplay with the various managerial levels across the organisation. Research by Dr Wong into strategic leadership within the US military sought to identify what competencies individuals required. He noted that there are three elements to a leader; business, leadership and personal effectiveness. Most of the research had focused on the `business' dimension, while the leadership and personal effectiveness dimensions had been overlooked due to the belief that leadership cannot be taught or that personal issues and business need to be separated. Another key aspect is self-awareness; being able to understand your own capabilities and weaknesses within certain situations.[207] Another key element identified was the level of cognitive complexity, the ability to manage the abstract, longer timeframes and align activities and actions to outcomes. Wong's research suggested, similar to Westberg and Mintzberg, that by deconstructing strategic leadership it becomes difficult for an institution to identify what personal qualities to develop. Instead, he proposes a framework of six meta-competencies (Table 7).[208]

Ser	Meta Competency	Descriptor
1	Identity	The ability to understand yourself, your strengths, weaknesses, own values and career development.
2	Mental Agility	The ability to scan their environment, apply a systems thinking approach, see the bigger picture and prioritise actions to mitigate risks.
3	Cross-cultural savvy	Identify perspectives beyond own boundaries, awareness of others, relationship building, influential and facilitator.
4	Interpersonal Maturity	Empowered decision-making, inspiring others, negotiating skills, collaborative approach and awareness of cultural framework impact on the organisation.
5	World-class Warrior	Demonstrate a clear understanding of activities at a strategic level, including strategy, multi-dimensional operations, cross-agency working, and effective decision-making based on intelligence.
6	Professional Astuteness	Understand the need to develop and coach future talent within the organisation through transformational leadership, coaching and mentoring in line with organisation's values.

Table 7: Strategic Leadership Competencies. Source: Wong.

[205]Doh, J.P., `Can Leadership be Taught? Perspectives from Management Educators', 2003, Vol 2 No.1 pp. 64.
[206]Shrivastava P. and Nachman S.A., `Strategic Leadership Patterns', *Strategic Management Journal*, John Wiley and Sons, Vol 10 51-66, 1989. Available at www.onlinelibrary.wiley.com
[207]Wong L., Gerras S., Kidd W., Pricone R. and Swengros R., *Strategic Leadership Competencies*, Strategic Studies Institute Report, US War College, 2003, downloaded from US War College online library, 10 July 2008.
[208]Wong L., et al, *Strategic Leadership Competencies*, 2008, p.11.

As Wong notes, managing the complexity of the battlefield or workplace requires clear objectives and the means by which to get there at a strategic level. Without a clear understanding of the risks, issues and potential threats that are present, there exists the possibility that the response implemented will not address the situation. This will limit the level of resilience that the organisation will display, which may result in a critical failure to manage the situation. Yardley comments on strategic leadership within the corporate world, raising concerns that it is focussed on the cult of the individual, driven by the desire to be measured by metrics and the financial bottom line.[209] This transactional approach to corporate leadership, with individuals paid for delivering a service, fails to develop the social capital of an organisation as it focuses the impact not on the relationship between the individuals, but rather on the reward given for the service. This is in contradiction to King, Westley and Mintzberg, who promote the concept that leadership, especially at the strategic level, needs to be visionary and able to empower the leader's audience through presence and action, which in turn enables the development of strategy to bring the vision into reality.[210]

For organisations it is important to understand that leadership is an innate capability which is built upon relationships between individuals and can be improved through education, training and development. It relies on the traits of each individual and the interactions between them, rather than obtaining a certain skill set, which will automatically make a strong leader. This is especially critical in a crisis or a long-term disruptive event, where there is the requirement for the staff within the organisation to believe in the capability of the leadership team to guide the organisation through the difficult period. Adair covers the requirements of the leader, highlighting five key elements not found in management. These are: Give direction; provide inspiration; build teams; set an example; and be accepted.[211] Westley and Mintzberg highlight similar themes around inspiring others and setting the vision and direction for the organisation, while Wong's meta-competencies also reflect these thoughts. King notes that in the period of stabilisation and COIN operations post 1990, the heroic leadership style seen in the Second World War and immediate COIN deployments was replaced with a more collaborative, politically aware, devolved and intelligence led.[212] He notes that the impact of the Afghanistan campaign, particularly the fight for Kandahar, has had a lasting impression on the development of strategic leadership within the UK military.[213]

[209]Yardley I. et al, From Battlefield to the Boardroom, 2011.
[210]Westley F., and Mintzberg H., `Visionary Leadership and Strategic Management', 1989; King A., *Command: The Twenty-first Century General*, 2019, pp 165-181.
[211]Thomas N, ed., *The John Adair Handbook of Management and Leadership*, Thorogood, London, 2006, p.119.
[212]King A., *Command: The Twenty-first Century General*, 2019, pp 214 – 248.
[213]Ibid, p.218

These traits align with the leadership behaviours that are enshrined within the Army Leadership Code. It focuses on the key traits identified and matured during recent campaigns. The seven leadership behaviours are: lead by example; encourage thinking; apply reward and discipline; demand high performance; encourage team confidence; recognise individual strengths and weaknesses; and strive for team goals.[214] Though tailored for military operations, these seven key behaviours are transferable to the private sector. Leaders can target their efforts to create and build high performing teams, striving for best practice and achieving their team goals. As these behaviours are team focussed, they represent key elements of a core capability for a leader during a crisis, to build the response team, set the direction and enable adaptive leadership to maximise team capability while under pressure. The behaviours also sit within three distinct areas, as shown in Figure 11.

Figure 11: Implementing the Leadership Behaviours
Source: MoD

Demiroz and Kapucu discuss the importance of leadership in managing crises and the ability to understand a complex situation, identify critical points and develop a means to help the organisation return to stability as quickly as possible, thereby managing the impact.[215] Their thoughts are like those of others who have studied the phenomenon in the emergency services.[216] They identified that positive leadership enables greater chances of a successful outcome. Adair, Grint and Fink note that successful leadership relies on effective interactions with others, strong communication skills, timely and accurate decision-making, negotiation skills and a willingness to work collaboratively at a strategic level.[217] The capabilities of communication and decision-making are identified as the most important to the joint approach and to build relationships across the various individuals and teams involved in incidents.[218] The ability of an organisation to foster strategic leadership is fundamental to implementing the vision and strategy of the institution. The question around whether Defence and the rail industry are learning organisations is the topic of the next section, which is critical to the ability of an organisation to survive a major disruptive event.

[214]Ministry of Defence*, The Army Leadership Code: An Introductory Guide*, Royal Military Academy Sandhurst, Camberley, 2015, p.5.
[215]Demiroz F., and Kapucu N., 2012.
[216]Fox J. C., `Analysing Leadership Styles of Incident Commanders', 2009; Kavanagh G., `Defining the Role of the Fire Gold Commander', MSc thesis, Bradford University, UK, 2009; Jeffries G., `Authentic Leadership Within Professional Services Organisations', MBA dissertation, University of Portsmouth, 2009; Ottery, K. P., `Performance Management in Policing: Transforming Leadership', Institute of Criminal Justice Studies, University of Portsmouth, 2010.
[217]Adair J, *Effective Strategic Leadership*, 2010; Grint K, *Leadership: A very Short Introduction*, Oxford University Press, Oxford, 2010: Grint K, *Leadership - Limits and Possibilities*, 2005; Fink S, *Crisis Management - Planning for the Inevitable*, Authors Guild Backprint Edition, Lincoln, US, 2002
[218]Demiroz F., and Kapucu N., 2012, p.94.

2.4.4 Organisational Learning

The phrase “Learning Organisation”, is a relatively new concept, having been created in the 1970s as one of the disciplines of the then new approach to organisation development.[219] Recently it has also been recognised as a key component of effective Change Management as to how organisations manage the effect of change; Kotter notes that learning is fundamental in the development of success and building competitive capacity to manage change in rapidly shifting economic environments.[220]

Figure 12 demonstrates the link, through the experiences of the leadership group, how they approach learning and how the skills that they possess enable them to identify mechanisms to build the capability to manage change. Organisational learning is an extensive and complex subject of much debate within business schools and the military in a bid to increase performance, reduce operating costs and build resilience.

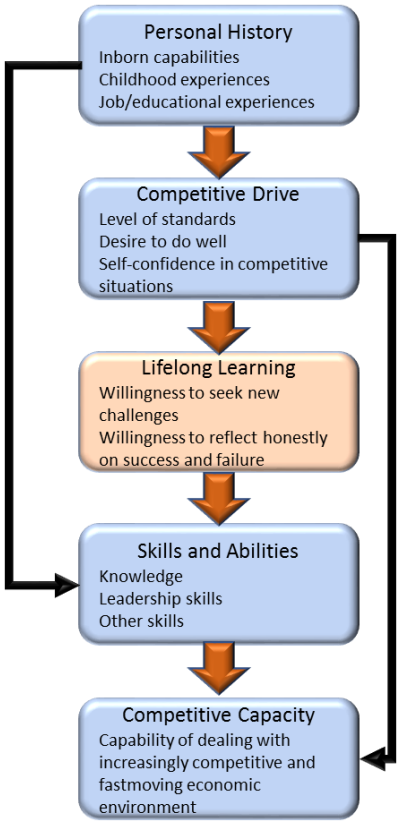

Figure 12: Link between Competitive Capacity and Learning. Source: Kotter

Organisational learning is categorised as neither beneficial nor detrimental within the various literature that was reviewed, though it is assumed that, by conducting effective organisational learning mechanisms, issues within the organisation that impact on performance capability will be identified and addressed. Toft and Reynolds note that several crisis events they researched were not so much unknown disasters, rather that the warning signs had been observed but not effectively dealt with, with similar behaviours being present. This identified a gap in learning within those organisations, which, if addressed, may lead to the better design of procedures that will reduce further losses.[221] This can clearly be seen in high profile cases such as the loss of the Columbia Space shuttle, or the RAF Nimrod over Afghanistan.[222]

Both detailed investigative reports noted that there were several major errors within the organisations that were left unchecked. There had been a lack of learning from near misses, cultural apathy to minor issues and a failure to address safety failings. In both the reports, the RAF and NASA were accused of ”not functioning as a learning organisation”, and the need to adopt a `learning culture`.[223] The executive

[219]Organization development is the planned and systematic enabling of sustained performance in an organization through the involvement of its people. https://www.cipd.co.uk/knowledge/strategy/organisational-development/factsheet#7969. Accessed 17 Apr 2018.
[220]Kotter, J.P., *Leading Change*, Harvard Business Review Press, Boston, Massachusetts, 1996. P.179.
[221]Toft B. and Reynolds, S., *Learning from Disasters: A Management Approach*, third edition, Perpetuity Press, Leicester, 2005, p.53.
[222]National Aeronautics and Space Administration (NASA), *Columbia Accident Investigation Board*. n.p.: NASA, 2003, available at https://www.nasa.gov/columbia/home/CAIB_Vol1.html; Ministry of Defence, *The Nimrod Review: An Independent Review Into The Broader Issues Surrounding The Loss Of The RAF Nimrod Mr2 Aircraft Xv230 In Afghanistan In 2006,* The Stationery Office, 2009.
[223]National Aeronautics and Space Administration (NASA), *Columbia Accident Investigation Board*., 2003, p. 127, available at https://www.nasa.gov/columbia/home/CAIB_Vol1 .html accessed on Jan 10, 2019; Ibid, p.574.

summary of the NASA report noted that early in the investigation it was identified that the event was not a random event, rather it was a symptom of NASA's underlying organisational culture and a failure to fundamentally learn the lessons of the Challenger disaster in 1986 and a near miss to the Atlanta in 1988, which suffered a very similar event.[224] It was clear there had been a `loss in institutional memory` in managing critical safety concerns, discussion of professional differences, a lack of integrated management across the programme, and the creation of informal decision-making processes outside of organisational rules.[225]

The works of several authors investigating how military organisations conduct organisational learning have identified lessons that can be transferred into industry. However, there is the requirement to approach lessons from history with caution.[226] King challenges Fox's proposition that the British Army was a learning organisation; he notes that learning and innovation was often stifled by senior officers, citing the refusal by Brigadier General Kiggell to accept the need to adopt skirmishing techniques and concentration of fire in place of mass bayonet charges prior to 1914, while in Germany military units were trialling these exact tactics, along with empowered frontline commanders, Mission Command[227] and Combined Arms groupings.[228] The British focussed on using mass to bring success, ignoring lessons from the Boer War and instead learning the wrong lessons from the recent Russo-Japan conflict. Had they looked internally at their performance in the Boer War, they would have explored similar tactics to that of the Germans.[229]

Research by TN Dupuy noted that the German military (Wehrmacht) consistently outfought the far more numerous allied armies that eventually defeated them. German soldiers consistently inflicted casualties on those that they fought. Dupuy noted that 100 German soldiers delivered a capability equivalent to 120 British soldiers, such was their war-fighting capability.[230] His work noted that a key component of this was the conceptual level of the German Forces, and their understanding of Combined Arms fighting and fast movement to build surprise. The doctrine and tactics seen in 1940 – 1945 by the Wehrmacht would not be out of place on today's battlefield; concepts such as 'Manoeuvre Warfare' and 'Mission Command' which the UK military have built their doctrine on were well developed and well-practised throughout The Second World War by the Wehrmacht.

David French notes that, by the end of the First World War, the British Army had secured victory through a manoeuvre involving proper combination of all arms at a tactical level of excellence.[231] Yet while both the British and the Germans explored the lessons of the War, only the Germans invested in embracing

[224]Ibid. P.127.
[225] Ibid, p.9, p.127
[226]Foley R.T, *German Strategy and The Path to Verdun, Erich Von Falkenhayn and the Development of Attrition, 1870 – 1916*, Cambridge University Press, Cambridge, 2005; Fox, A., *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918*, 2018; King A., Command: *The Twenty-first Century General*, 2019.
[227]Ministry of Defence, *Army Doctrine Publication: Operations*, Development, Concepts and Doctrine Centre, Shrivenham, 2010, pp.6-10 – 6-14.
[228]King, A., The Combat Soldier, Oxford University Press, Oxford, 2009, p.99, p.132.
[229] Ibid, p.100.
[230]Dupuy T. N., *The Genius of War, The German Army and General Staff, 1807 – 1945*, Lume Books, London, 2018.
[231]French, D., *Raising Churchill's army: the British Army and the war against Germany, 1919-1945,* Oxford University Press, Oxford, 2000, pp. 275 & 278.

the Combined Arms tactics that had been explored from 1914 onwards. In the UK, "the nation dissociated itself from its army".[232] Furthermore, Britain had returned to the 'Colonial Policeman' role, managing low intensity disputes, such as the Irish Civil War, and pursuing European stabilisation. Economic pressures at home also impacted on the capability of the military, and although the British Army demonstrated at the end of The First World War that it was able to learn, during the inter-war years a strong resistance to change within the organisation prevented it adapting and innovating. Murray notes that although a military learns quickly in war, it is slow to learn in peacetime, driven by its culture and leadership. On one side military organisations tend to be reluctant to change, whilst on the other, challenges at war require imagination and creativity. Eventually, "the less willing a culture is to display flexibility in peacetime, the more likely it is to have difficulty in adapting to the real conditions of war."[233] Subsequently, due to a reluctance to change and embrace the new technology and methods, the UK military found themselves hopelessly outclassed in the conceptual plane at the onset of The Second World War by the Wehrmacht.

In recent conflict, Mackay and Tatham note the significant difference in the level and speed of information that was available in conflicts at the start of the 21st Century, and the impact it has had on the execution of conflict. They note that the character of war has fundamentally shifted from large pitched battles led by heroic leaders inspiring their forces, to small-scale operations where the actions of an individual, Krulak's 'Strategic Corporal'[234], can have major impact to the success of the mission.[235] They observe that leadership, command and operational planning needs to change to keep pace with the changing character of war, and leaders need to be far more focussed on the population and influence effects; Western militaries need to learn the lessons of recent conflicts.[236] State-on-State conflict, as seen in the 1914-1918 and 1939-1945 global conflicts are no longer the norm; conflict is multi-dimensional, with military forces potentially being defeated before they enter into conflict in today's information rich, interconnected, globalised battlefield. They remark on the failure of the UK to invest in information exploitation and management training for the military, highlighting the failure to prepare for tomorrow's conflict, and instead focussed on the previous conflict.[237] While Fox may promote the military as being adaptive and innovative during 1914 - 1918, observations of the recent military conduct are not as supportive to depicting the military as an effective learning organisation.[238]

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[232]Haswell, J., *The British Army, a Concise History,* Thames and Hudson, London, 1975, p.138.
[233]Murray, W., `Does Military Culture Matter?' *Orbis Volume* 43, number 1, 1999, pp. 27-42, available at https://www.sciencedirect.com/sdfe/pdf/download/eid/1-s2.0-S0030438799800556/first-page-pdf.
[234]General Krulak coined the phrase 'Strategic Corporal' in 1999 before the campaigns in Iraq and Afghanistan. He predicted that in increasingly complex operating environments there would be a need to exploit decision critical information at the lowest levels. Similarly, he predicted that decisions made at the tactical level could have a strategic political impact due to an expanding global media. See Krulak C.C `the Strategic Corporal: Leadership in the Three Block War', Marines Magazine, 1999, available at https://apps.dtic.mil/dtic/tr/fulltext/u2/a399413.pdf.
[235]Mackay A and Tatham S, *Behavioual Conflict: Why Understanding People and Their Motivations Wil Prove Decisive in Future Conflict*, Military Studies Press, Essex, 2011, p.6.
[236]Ibid, p.11.
[237]Ibid, p.13.
[238]Gracey A., `Five Years On, Lessons From Iraq.` *British Army Review Special Report*: *Lessons from Combat, Volume 3*, Ministry of Defence, Warminster, 2014; King A., Military Command in the Last Decade, *British Army Review*, British Army, 2011, pp20 – 31; King A., *Command: The Twenty-first Century General*, 2019; Ledwidge, *Losing Small Wars*, 2012; Mansoor, P., `The British Army and Lessons of the Iraq War', *British Army Review*, 2009, pp11-15; Mackay A. and Tatham, S., `Behavioural Conflict - From General to Strategic Corporal: Complexity, Adaptation and Influence', *The Shrivenham Papers*, 2009; Mackay A and Tatham S, *Behavioual Conflict: Why Understanding People and Their Motivations Wil Prove Decisive in Future Conflict*, 2011; North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, 2009.

Organisational learning does not require an organisation to experience a crisis or disruptive event in order to learn. Steven Fink notes that the most effective way of learning is observing how others handle crises, what worked and what didn't, and then for organisations to take away those lessons.[239] By noting how and where competitors were vulnerable provides two options of learning; where an organisation may also be weak, and where it may be able to target its resources against its competitors to obtain part of their market share. This approach offers a double impact of greater awareness of potential vulnerabilities within the organisation, as well as potential areas of exploitation of the competition's weaknesses. Lines notes that while learning is critical to how an organisation adapts to change, it is often a by-product of the performance tasks that are carried out for other purposes.[240] Organisational learning is rarely a defined and bespoke programme, therefore understanding the relationship between the structures, processes and procedures is key to being able to understand how the organisation is identifying and absorbing lessons. Lines used strategic change as the concept of his research as multiple researchers had noted close links between strategy, change and the subsequent learning that occurs.

Yadav and Agarwal identified the Organisational Leaning process (Figure 13), noting in their research that a learning organisation was one that could alter its very programming through how it captures and uses information.[241] Research by Peter Senge in 1990 first explored the concept of Organisational Learning and how to move the institution from reactive thinking to becoming more adept at critical thinking and learning lessons to enhance performance and capability. Senge, Yadav and Agarwal comment on the need for the leadership group to develop the correct learning culture, helping to break down the barriers that prevent the engagement required to enable the process. This is discussed in detail in Yadev and Agarwal's referenced research paper.

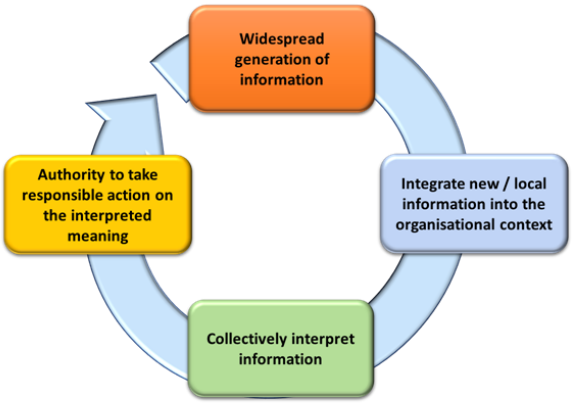

Figure 13: Organisational Learning Model Source: Yadav and Agarwal

The level and type of learning success is dependent on the participation of the workforce, and the level of communication within the organisation.[242] If done through activities that are planned and managed by others, then known knowledge is moved from one group to another. If all parties participate in the learning journey, then new knowledge is brought into the organisation. Lines notes the importance of

[239]Fink S, *Crisis Management - Planning for the Inevitable*, 2002, p.90.
[240] Lines R., `How Social Accounts and Participation During Change Affect Organisational Learning`, *Journal of Workplace Learning*, Emerald Group Publishing Limited, Vol 17, No.3 2005, pp 157-177.
[241]Yardev S. and Agarwal V., `Benefits and Barriers of Learning Organisation and its Five Discipline`, *Journal of Business and Management*, Volume 18, Issue 12, Version 1, 2016, pp. 18-24
[242]Lines R., `How Social Accounts and Participation During Change Affect Organisational Learning`, 2005, p. 158; Yardev S. and Agarwal V., `Benefits and Barriers of Learning Organisation and its Five Discipline`, 2016.

this approach in developing organisational learning approaches as the intent of organisational learning is to obtain new knowledge, especially when managing disruptive events. The more diverse the audience involved in the learning process, the more effective it can be for the organisation, as participation enables contact across the organisational hierarchy, enabling preconceptions to be challenged using differing cultural lenses.

However, if individuals feel that the organisation is not addressing their concerns, they may seek to act outside of the official channel and manage the problem themselves. During this period, individuals may identify a localised solution to a certain issue and implement it, despite organisational policy. This uncontrolled dynamic innovation within teams may result in a level of unknown capability being created. The need for this innovation had been driven by the organisational inertia, which had failed to identify the issue initially through entrenched communication channels and restrictive R&D practices.[243] However, the user group, through their persistence, become influential in forcing the need for the organisation to change.[244] This style of innovation or learning, mentioned by Fox, King and Farrell, is sometimes known as "bottom up learning," or, as it is more formally known by Eric von Hippel, "Free innovation" (Figure 14).

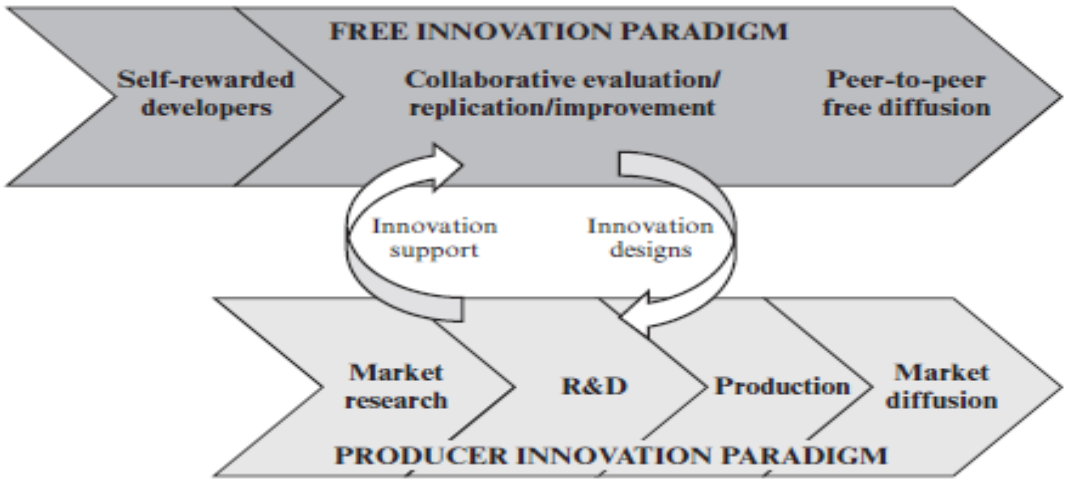

Figure 14: Free and Producer Innovation Relationship. Source: von Hippel

In his work Von Hippel describes the process of free innovation as the situation where an individual, for the purpose of the greater good and without any formal initiative, seeks to develop a product to address a problem when the organisation (producer) fails to present a solution.[245] Though there is a defined relationship between free and organisational (producer) innovation, there is limited control of the creativity of those with experience within the group experiencing the issue.

[243]Gustafsson R. and Autio E., `A failure trichotomy in knowledge and exploitation', *Research Policy Journal*, Elsevier, Volume 40, 2011, pp 819 – 831. Downloaded from www.elsevier.com/locate/respol. Accessed 22 October 2018.
[244]Ibid, p.824.
[245]Hippel von E., Free Innovation, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA, 2017.

However, while the free innovation addresses the immediate localised issue; it creates a detrimental effect to the organisation as there is now a non-standardised solution in place. Von Hippel notes that while the producer engages in innovation due to extrinsic pressures, the free innovator is driven by an intrinsic desire.[246] The organisation responds to the individual by seeking to take control of the innovation and assess its viability, bringing it under formal control through the R&D team. Meanwhile, the initial creator of the innovation continues to spread the knowledge freely, resulting in the solution migrating across the organisation through informal networks.

Innovation and creation within organisations have been recognised as central to organisational performance, with creativity seen as the capability of the individual, while innovation is the ability of the organisation to successfully exploit the creativity of individuals.[247] For organisations, innovation has been vigorously promoted for two generations, though little has been done to measure the impact of innovation and the importance of workforce creativity.[248] Teresa Amabile provided a comprehensive model for creativity within her research (Figure 15) into the topic and its importance for organisational development, through three intersecting components, with the creativity zone of individuals sitting at the intersection of all three components. Both Von Hippel's and Amabile's work reflect the importance creativity within the process of innovation and learning, which is further enhanced through the intrinsic motivation of the user community.[249]

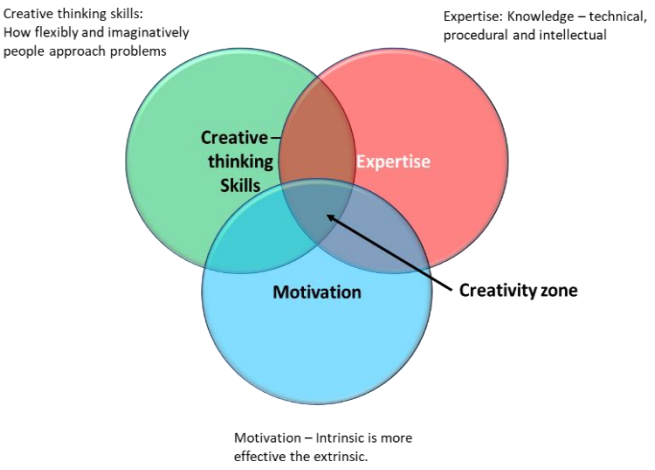

Figure 15: Components of Creativity. Source: Amabile

Using evidence from several authors, this thesis positions organisational learning as:

> *an activity that identifies, analyses, develops and/or distributes knowledge that is considered beneficial to the performance of the organisation as an organic system*.

[246]Ibid, p.5 - 8.
[247]Serrat O., `Harnessing Creativity and Innovation in the Workplace', Knowledge Solutions, Asian Development Bank, Manila, Philippines, 2009, p.1. Downloaded from www.adb.org/knowledgesolutions. Accessed 16 November 2018; Adams, K., `The Sources of Innovation and Creativity', the New Commission on the Skills of the American Workforce, National Center on Education and the Economy, Sept 2005.
[248]Glor, E. D., `Studying the Impact of Innovation on Organisations, Organisational Populations and Organisational Communities: A Framework for Research', *The Innovation Journal: The Public Sector Innovation Journal*, Volume 19 Number 3, 2014, pp 1-20.
[249]Adams, K., `The Sources of Innovation and Creativity', Sept 2005, p.6.

This is important, as it reflects more than just commercial performance; it suggests that the organisation is a system of systems which interact and learn from each other and that shared learning drives continuous improvement. Lukic, Margaryan and Littlejohn note that the need for organisations to learn from major incidents is critical to their success, either from their own crisis, or from detailed analysis of crises of other sector organisations.[250] According to Yadav and Agarwal, a learning organisation actively promotes, facilitates and rewards collective learning, supporting effective change and enriching the capacity of the leadership group (Figure 16). The key component of developing the required learning culture is the active pursuit of new knowledge, through cross-organisational engagement, by the leadership group, thus empowering the individuals to identify and discuss potential lessons. In their research they note several benefits from this approach.[251]

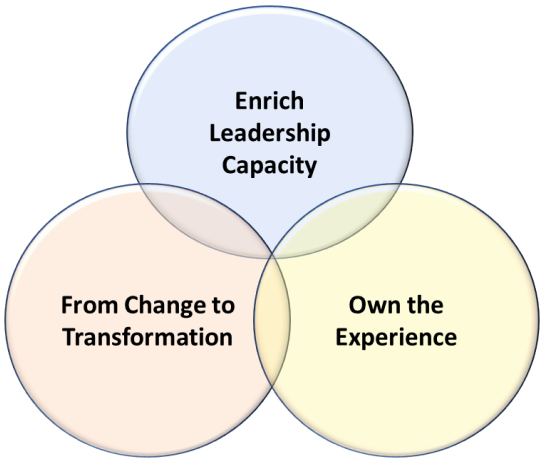

Figure 16: Benefits of a Learning Organisation
Source: Yadav and Agarwal

In her work, Fox has highlighted how the British Army of 1914 -18 displayed the characteristics of a learning organisation at an institutional level. She noted that though the Army employed ad hoc methods initially, it quickly started to learn lessons through both internal and external reflection, it sponsored the design, development and implementation of new technology, methods and instruction, it shared knowledge and experience across different campaign areas, it developed its own assurance branch to ensure the standardisation of quality, it managed large scale change effectively, and it sought to utilise subject matter experts, either military or civilian, to enable it to deliver its end-state. In 1936 General Fuller, a leading theorist on Armoured Warfare and a senior British Officer during the inter-war years, noted:

> "Nothing is more dangerous than to rely on peace training; for in modern times, when war is declared, training has always been proved out of date. Consequently, the more elastic a man's mind is, that is, the more it is able to receive and digest new impressions and experiences, the more common-sense will be the actions resulting."[252]

The work by Fox notes the importance of the ability of individuals to be able to apply experiences and innovate in order to obtain the advantage. Her research notes that the innovation at the individual and team level enabled the British Army to respond quickly to new threats and challenges. The process of free innovation allowed rapid development of capabilities at the tactical level, though it was not as obvious at the operational or strategic level, which impacted on the level of development within the

[250] Lukic D., Margaryan A. and Littlejohn A., `How Organisations Learn from Safety Incidents: a Multifaceted Problem`, *Journal of Workplace Learning*, Emerald Group Publishing Limited, Vol 22, No.7 2010, pp 428-450.
[251] Yardev S. and Agarwal V., `Benefits and Barriers of Learning Organisation and its Five Discipline`, 2016, p.21.
[252] Fuller, *Generalship: its diseases and their cure: a study of the personal factor in command*, Military Service Publication, Harrisburg, 1936, p.55, available from https://archive.org/details/GeneralshipItsDiseasesAndTheirCure/page/n53/mode/2up

inter-war years. The UK military did not fully engage with the application of the process of identifying and implementing lessons it had learned in combat due to a culture created by years of relying on a system that produced an institutional way of thinking, which stifled innovation creativity and instead replaced it with a need for conforming and standardisation.

This challenge has been levied against the UK military again at the start of the 21st Century. Recent authors, including senior military officers, politicians, academics and journalists, some which have been reviewed in this thesis, have questioned whether the military was correctly equipped, resourced and trained to meet the challenges of 21st Century conflict. The discussion about the level of cognitive capability, learning mechanisms and deference to command, especially at senior level, resulted in an organisation that failed to learn and adapt quickly at the operational and strategic level.

To develop a Learning Organisation there is the requirement for the presence of these characteristics and the hierarchy possessing elastic minds, whilst also possessing an intellectual vitality that breeds tolerance of criticism and encouragement of debate. As far back as the 1914 – 1918 global conflict, there was the need to conform and standardise. Prior to 1914, during the conflict and within the interwar years, the military came under scrutiny from several controversial and disenfranchised individuals. This was particularly focussed on the quality of senior leadership, with the Staff College, in Fuller's opinion, being "a machine that produced standardized thinking, and it was the wrong type of thinking." He added: "at present we are controlled, through no fault of its individual members, by a hierarchy which, though autocratic, is sterile. It fears initiative; it is terrified at originality and suppresses criticism."[253]

The situation did not improve post First World War. Liddell Hart noted that there was still an obsession with technicality and detail to conform which suppressed the ability of the Officer Corps to explore disruptive thinking, mental agility and freedom of expression that was required to build the disruptive approach to learning needed within a Learning Organisation. He noted that the topics studied at UK Staff College were:

> "one of excessive concentration on detail rather an inquiry into the broad principles of the leader's art and comparison with that of the great captains of all ages. To be able to enumerate the blades of grass in the Shenandoah Valley and the yards marched by Stonewall Jackson's men is not an adequate foundation for leadership in a future war where conditions and armament have radically changed."[254]

Liddell Hart was not the only one to comment on this concern during this period. Sir Philip Gibbs, a respected war correspondent and author, who was able to operate outside of the military censorship, also noted the lack of broad thinking and willingness to challenge the establishment's way of thinking. Having observed the output of UK Staff College, he recorded that:

[253] Fuller cited in Prosser, P., `An Army in our own Image', *Defence Research Paper*, UK Defence Academy, Shrivenham, 2012, p.4.
[254] Liddell Hart, B., *The Remaking of Modern Armies,* John Murray*,* London, 1927, pp.170-174.

> "I met many generals who were men of ability, energy, high sense of duty, and strong personality. I found them intellectually, with few exceptions, narrowly moulded to the same type, strangely limited in their range of ideas and qualities of character."[255]

Gibbs was also concerned about the quality of the Staff College approach, noting that:

> "Our Staff College had been hopelessly inefficient in its system of training, if I am justified in forming such an opinion from specimens produced by it, who had the brains of canaries and the manners of Potsdam. There was close cooperation among the officers of the Regular Army, so that they took the lion's share of Staff Appointments, thus keeping out brilliant men of the New Armies, whose brain power, to say the least of it, was on a higher standard than that of the Sandhurst standard."[256]

These comments are already identifying that in a bid to breed standardised thinking within the Officer Corps to enable an effective General Staff, the UK Staff College was removing the key capability required in conflict; the agility of mind and disruptive thinking to manage a dynamically changing environment. This approach greatly hindered the ability of the British Army in the inter-war years to prepare itself for the upcoming war with Germany; its command staff all thought alike, and the doctrine was based on how to fight the last war. This was also driven by the hierarchical regimental system that existed within the military and still exists, particularly in the Army. The ability to generate and sustain a disruptive thinking mentality within the organisation is frowned upon in peacetime; yet in conflict it is this exact approach that is required to help officers "think outside the box."

However, it is not only the British leadership that has received a level of criticism for being unable to learn and adapt to a changing situation and respond quickly. Foley's review of Falkenhayn's ability to operate effectively at the strategic level demonstrates similar flaws in German military leadership. Falkenhayn failed to identify that his strategy at Verdun was failing, resulting in him ignoring the collapsing Russian Front until too late. He also greatly underestimated the French political situation with regards to resolve around Verdun, or the ferocity and capability of the British assault at the Somme. Unfortunately for Falkenhayn, by the start of Jul 1916, the British had learnt the lesson of concentrating fire and weight of numbers, with 3,300 artillery pieces concentrating on the German lines; in response the Germans could only muster 844 artillery pieces.[257] The Somme attack also cost the Germans far more casualties than planned for; in the first ten days they had lost over 40,000 troops; in a similar period at Verdun they had lost just under 26,000.[258] Falkenhayn's loss of situational awareness at the strategic level, failure to commit forces, and a paralysis of command decision-making resulted in strategic failure.

[255] Gibbs, P., *Realities of war,* Hienemann, Wisconsin, 1920, p.46.
[256] Gibbs, *Realities of war*, pp.46-47.
[257]Foley, *German Strategy and The Path to Verdun, Erich Von Falkenhayn and the Development of Attrition, 1870 – 1916*, p.251
[258]Ibid, p.251.

These similar traits are observed at the beginning of the 21st Century with King observing that the military that entered Iraq in was ”arrogant, complacent… unwilling to change and limited in putting together a coherent strategy.”[259] Observations from Mackay and Tatham note that there was a failure of the UK to invest in much needed research and institutional learning around the subject of Influence Operations and understanding Strategic Communications, which were not part of the formal planning process, which resulted in campaign objective mis-alignment in Iraq and Afghanistan.[260]

Argyris proposed that an organisation develops two approaches to learning; it can either attempt to address the surface issues, known as single loop learning, or address the root causes of the issues, referred to as double loop learning.[261] Argyris identified two sets of variables that prevented effective organisational learning; the interactions between stakeholders and the bureaucratic processes that limit effective gathering of information; and the degree of willingness of the audience to accept the findings. Single loop learning only addresses the results of the incident, which can result in the reoccurrence of the incident elsewhere in the organisation. Double loop learning aims to identify and address the core issues, which may require a deep cultural aspect to the implemented changes, requiring a strong leadership component to integrate the findings into the organisation. Lukic et al noted that the approach taken towards learning is situationally focussed; the approach taken for a site failure compared to an isolated incident will be different. They proposed four key questions that needed to be asked to enable the correct lessons to be identified. These were:

- Who is learning?
- What kind of learning process is adopted?
- What is the nature of problems causing the incident?
- What type of knowledge is involved?[262]

A critical component of the organisational learning process is how the shared or new knowledge that has been identified is subsequently captured to enable wider dissemination across the organisation. This is the process of the organisational doctrine framework, enabling the lessons that have been captured to be embedded within organisational thinking and shared across the institution.

2.4.5 The Role of Doctrine

In the military, the term `Doctrine` is regularly used to describe a framework of documents focussed on developing organisational capability. The phrase has been part of the military vernacular for at least a century, yet recent research into how well it was understood by the UK military identified a serious

[259]Fox, A., Learning to Fight: Military Innovation and Change in the British Army, 1914-1918, 2018; King A., Military Command in the Last Decade, *British Army Review*, 2011, pp 23-24.
[260]Mackay A and Tatham S, *Behavioual Conflict: Why Understanding People and Their Motivations Wil Prove Decisive in Future Conflict*, 2011, p.14.
[261] Argyris, A., `Single-loop and Double-loop Models in Research on Decision-making', *Administrative Science Quarterly*, Johnson Graduate School of Management, Vol 21, Number 3, 1976, p.365.
[262]Lukic D. et al, `How Organisations Learn from Safety Incidents: a Multifaceted Problem`, 2010, pp 429.

disconnect between military and political understanding of the term.[263] Harvey and Wilkinson's report identified a number of fundamental issues with the culture and leadership of the military when it came to the effective application of its doctrinal framework. Doctrine is not designed to dictate all activity. NATO describes doctrine as `fundamental principles by which the military forces guide their actions in support of objectives. It is authoritative but requires judgment in application.'[264] Doctrine is also not specific to the military. The UK Emergency Services possess a doctrinal framework; the Joint Emergency Services Interoperability Programme (JESIP) being a prime example. Industry also possesses doctrine; Hofstede's doctrine being just one example. Sport is another industry that has seen the rise of a doctrinal approach to develop capability. Teams are developed with a certain way of playing, with team structure set against it, players are purchased, trained and positioned to deliver the required outcome against the desired doctrinal framework. So, what is doctrine?

General Sir Rupert Smith places the genesis of doctrine with Count Helmuth Von Moltke, who, through his strategic instructions created a framework that in 1869 reflected a concept that is now seen as doctrine.[265] This is challenged by Hoiback. He proposes that while Von Moltke sought to deliver a framework for the military, there was a lack of desire to have a template with which to fight battles He proposes that the origin of doctrine belongs to the French as they sought to learn from the strategic failures against the Prussians in 1870. By reviewing lessons from failure, General Foch sought to develop a mechanism to inspire the military in the way of Napoleon. His methodology, like that of the Church, would provide the military officer a conviction of belief, similar to the Holy Gospel in religion.[266] Foch's intent was for each officer to understand the spirit of the doctrine, allowing them to adapt it depending on the situation with which they were faced.[267] During this period, the French military leadership had applied the concepts of a learning organisation, developing a framework that was structured to provide guidance but flexible enough to enable individuals room to adapt it to specific situations.

Multiple authors have noted the importance of not just identifying lessons, but also embedding them across the organisation to ensure they are adopted by the workforce.[268] As the organisational learning process involves multiple stakeholders, the most effective method identified for sharing and embedding the required changes is through the updating / creation of doctrine publications to communicate and educate the various stakeholder groups. Lines notes that the successful support and adapting of changes is dependent on the consensus of the findings across the organisation.[269] This can be developed through the inclusion of changes into the revised doctrine framework. Doctrine aims to deliver the base layer for an organisation to build on. It provides a level of stability in a dynamically

[263]Hoiback, H., `What is Doctrine?` *Journal of Strategic Studies*, Routledge Group, Volume 34, Issue 6, 2011, pp 879 – 900; Harvey C., and Wilkinson M., `The Value of Doctrine,` The RUSI Journal, Routledge, Taylor and Francis Group, Volume 154, Number 6, 2009, pp. 26-31.
[264] AAP-6 NATO Glossary of Terms and Definitions. NATO, 2018.
[265]Smith, R., *The Utility of Force: The Art of War in the Modern World*, Penguin Books, London, 2005, p.96.
[266] Hoiback, H., `What is Doctrine?`,2011, p.882.
[267] Foch, F., *The Principles of War*, Chapman and Hall, London, 1920.
[268]Lukic D. et al, `How Organisations Learn from Safety Incidents: a Multifaceted Problem`, 2010; Lines R., `How Social Accounts and Participation During Change Affect Organisational Learning`, 2005; Fink S, *Crisis Management - Planning for the Inevitable*, 2002; Toft B. and Reynolds, S., *Learning from Disasters: A Management Approach*, 2005; Smith, R., *The Utility of Force:* 2005.
[269]Lines R., `How Social Accounts and Participation During Change Affect Organisational Learning`, 2005, p.160.

changing environment. Hoiback discusses that doctrine provides three mechanisms within an organisation, depending on the effectiveness of the leadership and the strength of organisational culture (Figure 17). If used properly by an organisation, doctrine will provide a conceptual map for its personnel, providing a mental anchor when faced with complex problems and dynamically changing environments. The leadership can use doctrine as a tool of command, providing an accepted direction, underpinned by theory, to push the organisation forward, provided they adhere to the fundamental concepts. Culturally, doctrine can be used as a vehicle for change, when allied with a learning approach, to identify the need for change and develop the urgency to prepare the organisation for that change, as demonstrated by Foch. Doctrine can also be used as a vehicle for education, providing a level of knowledge to provide a toolbox of concepts and mechanisms that can be tailored to the situation.

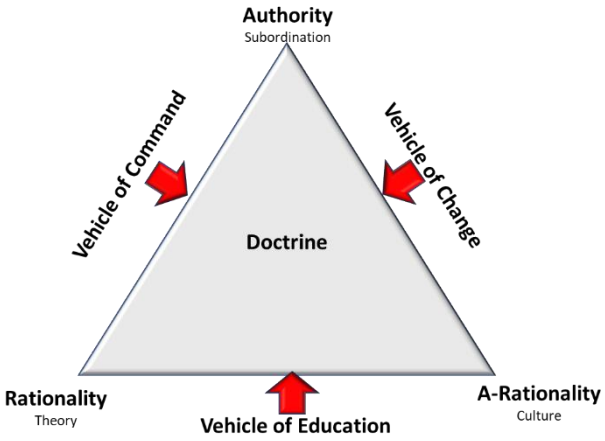

Figure 17: Utility of Doctrine. Source: Hoiback

The concepts shown in Figure 17 can be seen in military, industry and sporting organisations; the ability to have a base layer of knowledge that all members understand, coupled with the flexibility to adapt depending on the situation. In response to the question, the author of this thesis proposes that:

> *Doctrine is a base layer of ingrained knowledge aligned to the organisation's individual culture, that is clearly communicated, understood and applied by all, and is regularly reviewed and updated through organisational learning practices*.

The analysis has shown that the quality and effectiveness of how doctrine is applied within an organisation is reliant on the culture and leadership of the institution, aligned to its vision and purpose.

Investigative work into the topic of Organisational Resilience has shown that though there are multiple publications at the strategic level, including the UN directives, the UK Resilience Standard and various discipline specific publications, there is no clear doctrine, cultural template or clear body of knowledge for the resilience professional. This situation is further exacerbated by organisations not being able to translate the strategic concept into actual activities.[270] To enable this thesis to develop its approach to the research and the creation of an Organisational Resilience management framework, given the several definitions that currently exist, it is important to clearly define the concept of organisational resilience.

[270] McManus S., Seville, E., Vargo J. and Brunsdon D, `Facilitated Process for Improving Organisational Resilience`, *Natural Hazards Review*, American Society of Civil Engineers, Virginia, 2008, p.81.

2.5 THE REVISED DEFINITION OF ORGANISATIONAL RESILIENCE

Prior to developing the framework for managing Organisational Resilience, it is important that the concept of Organisational Resilience is defined; this will deliver the premise upon which the framework will be built upon. Based on analysed literature, supported by academic research and business management professional studies, this thesis proposes that the current thought process on Organisational Resilience is too limited. The author proposes a new definition of Organisational Resilience:

> *A people centric capability based on the strategic co-ordination of organisational resources, adaptive leadership, intelligence, communication and staff development which enables the identification and analysis of strategic threats through shared situational awareness. This enables the preparation, education and contingency planning to facilitate effective resistance to hazards, multi-level response, recovery and learning to maintain operational sustainability.*

British Standard BS65000, written in 2014, states that Organisational Resilience is the `ability of an organisation to anticipate, prepare for, and respond and adapt to incremental change and sudden disruptions in order to survive and prosper.'[271] This definition still focuses on the organisation and its ability to react, recover and adapt to the situation it encounters, but fails to discuss or identify the critical elements in enabling that adaptation and survival to exist. What is very apparent with both the British Standard, and the UK Government approach to building community resilience, is the focus on the organisation as an individual unit, unlike the direction given by Seville et al who state that "resilience is not something that can be achieved by any one organisation or infrastructure system acting in isolation."[272] Their paper discusses that an organisation will normally have incident and emergency plans in place for minor events, relying on the day-to-day experience and knowledge of the teams to respond. However, a crisis will stretch the capability of an organisation and will require specialised techniques, specially formed teams and the ability to work with other organisations. Work by McManus et al into community resilience identified that organisations needed to develop not only their immediate frontline resilience capability, but there was also a major gap in the longer-term sustainability to the work done within the observed organisations to develop their contribution to community resilience.[273] This was also very evident within organisations, with research by Amy Stephenson in benchmarking resilience in organisations in New Zealand in 2010 highlighting a failure to approach resilience holistically, with organisations failing to understand their vulnerabilities and having flawed assumptions and poor situational awareness.[274] Understanding the threat to the organisation is a key area in developing a resilience strategy.

[271]British Standards Institute, BS65000:2014 Organisational Resilience, 2014, p.2.
[272]Seville E et al., `Building Organisation Resilience: A New Zealand Approach', 2006.
[273] McManus S., et al, `Facilitated Process for Improving Organisational Resilience`, 2008, p.82.
[274]Stephenson, A. `Benchmarking the Resilience of Organisations,' *PhD Thesis*, Civil and Natural Resources Engineering Department, Canterbury University, New Zealand, 2010, p.247. Available at www.resorgs.org.nz.

2.6 UNDERSTANDING THE THREAT

2.6.1 Building Situational Awareness

Understanding the threat picture is the first step in building an effective approach to resilience, either within a frontline unit, a strategic headquarters or an organisation. McManus el al note the failure of organisations to build their situational awareness during incidents, becoming focussed on the immediate issue. For resilience management to be successful, the organisation must build a clear understanding and awareness of issues.[275] Cole notes that similar issues hampered the response of the UK government during various UK resilience issues at the beginning of the 21st Century, with various crises, both man-made and natural, requiring a higher level of co-ordinated response, relying on more than just the military and emergency services.[276]

The UK military open their military doctrine on stabilisation with the criticality of understanding the situation they are entering.[277] Elliott refers to the importance in building and maintaining situational awareness. Several failings made by the senior military commanders during the Iraq and Afghanistan campaigns can be attributed to a lack of situational awareness. Rather than focussing on the strategic implications, too many senior staff got absorbed in the day to day activities.[278] North also refers to the importance of obtaining the wider understanding of the situation, enabling the decision maker to develop a better awareness of the impact of their immediate actions and the wider implications. [279] He explores in detail the decision to drawdown the capability of the UK military in Iraq shortly after the successful invasion. This resulted in the follow-on British forces being placed on the back foot, which, unforeseen by the initial campaign planners, resulted in the failure to have enough personnel available to maintain situational awareness of the actual situation. In June 2003, the lack of situational awareness within the area resulted in the death of six Royal Military Police personnel and the initial raising of an insurgency against the British. [280] In the UK, the senior leadership, rather than reacting accordingly, downplayed the events and the information from senior commanders in Iraq. This resulted in the political leadership not receiving the full picture of the deteriorating situation.[281]

The work of Liang and Xiangsui, *Unrestricted Warfare*, also identified how the application of home-based threats and cultural schisms brought about by mobilised disaffected members of the population could be used to defeat enemies from distance. They explored the concept that the character of warfare had changed. It had moved from Clausewitz's definition of "using armed force to compel the enemy to submit to one's will" to "using all means, including armed force or non-armed force, military or non-military, and lethal and non-lethal means to compel the enemy to accept one's interests."[282] Therefore, warfare was now unrestricted, with all means available to bend the enemy to accept the interest of the

[275]McManus S., et al, `Facilitated Process for Improving Organisational Resilience`, 2008, p.84.
[276]Cole, J., Securing Our future: Resilience in the Twenty-First Century, *The RUSI Journal*, 2010, p.47
[277]MoD JDP 05, 2016, p.2
[278]Elliott, C. L., *High Command*, 2015, p.2.
[279]North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, 2009.
[280]Burke, J., *The Guardian*, 'Run or you will die. The soldiers did not go and they died…', 26 Jun 2003, available online at www.theguardian,com. Accessed on 23 Nov 2016.
[281]North, R., *Ministry of Defeat,* 2009. P.27
[282]Liang Q and Xiangsui W, *Unrestricted Warfare*, PLA Literature and Arts Publishing House, Beijing, 1999, p.6.

aggressor. Islamic fundamentalist groups are utilising 5GW techniques against states and global corporations, enhancing their reach through strategic communication frameworks, social media and the weaponising of home-grown activists. To defeat such a subversive and complex threat requires a comprehensive approach and integrated working models across all aspects of society to prevent, contain and respond to disruptive events.

The British Army's doctrine publication on COIN expressly indicates the importance of building an intelligence picture to aid decision making. It states that "Being able to make the right decision requires a high level of training, trust and discipline among the forces deployed, appropriate equipment and a high level of understanding and situational awareness."[283] It also dictates that a key component of the headquarters, at whatever level, is to assist in planning and provide situational awareness to home base.[284] Stephenson noted that her review of 68 organisations in New Zealand and their resilience capability was dependent on their ability to build and maintain situational awareness and informed decision making, to assist in managing the risks, hazards and vulnerabilities.[285]

Several authors have noted that the current military operating environment has forced today's military commander to become competent and experienced at functioning across a wide operational spectrum, from warfighting, peacekeeping, diplomacy and reconstruction of societies, infrastructure and international relations.[286] The leadership demanded by the complex, vague and uncertain modern context is one of the contributory challenges confronting the modern military leader.[287] Effective decision-making, problem-solving and strong communication skills are fundamental to the delivery of a successful outcome.[288] The skills of the military commander on the battlefield can also be recognised within senior incident commanders of the fire service.[289] For both the military and the fire service, though there is a reliance on the quality and capability of the equipment, the critical element is clearly the human factor represented by the commander and their crew.[290] Thus, there is a need to ensure that the crew and their underlying culture is suited for the task at hand, through effective leadership, timely communication, situational awareness of the task at hand and regular professional development of the team; as individuals and collectively.

As both North and Elliott indicated, this was not the case for the Iraq campaign, with loss of situational awareness, constrained decision-making, limited preparation for COIN operations and tailored messages being returned to the UK. The doctrine, which stated the requirement for clear situational

[283]Ministry of Defence, *British Army Field Manual (AFM) Volume 1 Chapter 10: Countering Insurgency*, Ministry of Defence, Warminster, 2009. p.3-14.
[284]Ibid, p.4-9.
[285]Stephenson, A. `Benchmarking the Resilience of Organisations,', 2010, p.241 – 248.
[286]Mackay A. and Tatham, S., `Behavioural Conflict - From General to Strategic Corporal: Complexity, Adaptation and Influence', *The Shrivenham Papers*, Defence Academy of the United Kingdom, Shrivenham, Swindon, 2009, p.8; King A., *Command: The Twenty-first Century General*, 2019; King A., Military Command in the Last Decade, *British Army Review*, 2011, pp20 – 31; North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, 2009; Ledwidge, Losing Small Wars, Yale University Press, London, 2012.
[287]Lucas, C. I., `Reflection in the Development of Professional Military Leadership', 2011, p.9.
[288]Yardley I, `The Wider Utility of Mission Command', 2009.
[289]Burke, E., `Competence in Command', *Journal of Managerial Psychology*, Vol. 12 No. 4, MCB University Press, 1997, pp. 261-279.
[290]E. Burke, `Competence in Command' p 261.

awareness when countering an insurgency, was not published until the withdrawal of the majority of troops from Iraq, resulting in the troops using incorrect lessons from previous campaigns and importing bias. Clearly the risks of managing a campaign in the Middle East with a COIN model based on operational models derived from within Northern Ireland, Bosnia and other semi-permissible environments were not considered when the deployment to Iraq was initiated. This resulted in the deployed organisation not being properly equipped, trained, informed or culturally aligned to the campaign they were engaged in.

2.6.2 Managing the Risk

Understanding what is meant by Risk and Risk Management terminology, two phrases that have become common language in the military and business today, is key to utilising the right skills to deliver success. Race, having investigated the behaviour of the military around the RAF Nimrod XV230 loss, highlights that while risk is regarded as a financial or corporate issue within business, quantifying risk through risk assessment, and risk management, is ingrained at all levels of the military decision-making process, especially for operations.[291] ISO 31000: *Risk Management – Principles and Guidelines Standard*, states that risk is "The effect of uncertainty on objectives[292]," while Axelos defines risk as "an uncertain event or set of events that, should it occur, will have an effect on the achievement of objectives."[293] Both these definitions echo how the military consider the concept and the uncertain situations that appear on the battlefield during the friction of war.

The ability to manage risk is key to success in both the military and business environment. Activities, such as Business Continuity Management, seek to create an understanding of key risks during the Business Impact Analysis phase to build mitigation activities.[294] As the Health and Safety at Work Act 1974 states, "It shall be the duty of every employer to ensure, so far as is reasonably practicable the health, safety and welfare at work of an employee."[295] To ensure that this is achieved, organisations need to understand potential risks to their staff and how to mitigate against these risks. For an organisation, any activity that it conducts will impact on and be impacted upon by the external environment within which it is operating, whether it is within the business sphere or a failed or failing state. Jewell indicates that the environment that surrounds an organisation is not stable.[296] It is increasingly turbulent due to the era of change and uncertainty that we currently operate within. The shape and size of these changes can vary, from strategic shocks to incremental impacts. Both can have a pervasive impact on society and the organisation.[297] *ADP Land Operations*, the warfighting doctrine for the British Army, gives clear direction to military leaders on how to manage risk.[298] It highlights that success comes from identifying when to take a decisive risk, not a mindset that is risk averse. This is

[291]Race, S. C., `Defence Safety – Is it Just Risky Business', *Defence Research Paper*, Advanced Command and Staff Course Number 15, UK Defence Academy, Shrivenham, 2012, p.30.
[292]BSI, *BS ISO 31000:2009 Risk Management – Principles and Guidelines*, London, 2010, P.1.
[293]Axelos, *Management of Risk: Guidance for Practitioners*, Global Best Practice, The Stationary Office, London, 2013, p.4.
[294]Business Continuity Institute, *Good Practice Guidelines 2013: Global Edition*, Business Continuity Institute, Reading, 2013. Pp. 48-49.
[295]Health and Safety Executive*, Health and Safety at Work Act 1974*, Chapter 37, section 2 p.1. Available at www.legislation.gov.uk/ukpga/1974/37/contents . Accessed 10 Nov 2016.
[296]Jewell, B., *An Integrated Approach to Business Studies*, 4th Edition, Pearson Education Limited, London, 2000.
[297]Ibid, p.95.
[298]Ministry of Defence, *Army Doctrine Publication (ADP): Operations*, 2010.

contrary to the rail industry, which has a very risk averse organisational culture. For the military commander, a key element of their role is to understand the pros and cons of a risk, weigh the balance and act decisively. This can only be obtained through good situational awareness and a strong intelligence gathering mechanism.

Martin discusses the importance of situational awareness, intelligence, experience and training when he studies how professionals manage risk in extreme circumstances.[299] His book discusses the aspects of risk management, understanding how to manage tolerances and the importance of knowing when to make a risk-based decision. Through the examination of extreme risks, focussing on Risk to Life, rather than corporate risk, Martin distils the key management processes that are practiced regularly by emergency personnel, military staff on operations and oil and gas experts dealing with critical events. He discusses the four key elements of understanding risk; frequency, severity, correlation and uncertainty.[300] By improving situational awareness around these four components of a risk, it is possible to build an educated picture on the impact of that risk if and as it manifests itself. This is the concept of risk management; building the information picture to mitigate the risk, or to seize the opportunity, before it becomes an issue and impacts detrimentally on the organisation. Toft and Reynolds take this further in discussing the fact that due to several inputs, plus individual experiences and knowledge, the management of risk is a subjective action, based on the perception of the risk weighted against the experience, knowledge and situational awareness of the individual.[301] This creates the risk of a heuristic approach within the decision-making cycle, especially if an individual has become accustomed to a certain way of thinking and acting in response to an event. The military, through the decision-making process of the combat or operational estimate, seeks to limit this risk by forcing individuals to present evidence-based analysis on which to make their judgement of risks and subsequent action plans.

Race discusses the UK military's approach, how it also focuses more on Risk to Life rather than financial risk and the need for the MoD, when deployed on operations, to operate at a minimum to UK national standards.[302] Where there are gaps due to operational exceptions, it is the responsibility of the MoD and the senior commander present on the ground to reduce any risk to As Low as Reasonably Possible (ALARP). The MoD guidance document, states that "Defence is bound by UK health safety and environmental protection laws, which are appropriate and proportionate for managing risks in the workplace."[303] The document also accepts that at times the military will deploy to areas "where the well-ordered UK statutory health and safety regime is both inadequate and inappropriate,"[304] with the importance being incumbent on the commander's ability to make a judgement call as to how to manage the risk, based on their knowledge, training, situational awareness and expertise. To build this capability, the military is required to include a level of acceptable risk within the training and

[299]Martin, D., *Managing Risk in Extreme Environments: Front-line Lessons for Corporates and Financial Institutions,* Kogan Page, London, 2006.
[300]Ibid, p.2.
[301]Toft B. and Reynolds, S., *Learning from Disasters: A Management Approach*, 2005, p.2.
[302]Race, S. C., `Defence Safety – Is it Just Risky Business', 2012.
[303]Ministry of Defence, *DSA1.1 Defence Policy for Health, Safety and Environmental Protection*, Defence Safety Authority, Ministry of Defence, London, 2016. P.ii.
[304]Ibid, p.ii.

development of the workforce on pre-deployment operations, managing that risk safely, yet enabling the individual and team to enhance their capability to assess risk and react accordingly while under pressure. As Griffin indicates, the requirement to manage risk within an operational context requires a morally courageous commander; and the essence of the military leader is exactly that.[305] The commander is trained from an early stage in their career to be able to make informed decisions, based on evidence-based analysis, to manage dynamic risks in a complex situation to maximise mission success. It is this ability, sometimes referred to as an art, that is the commander's primary duty.[306]

2.7 CRISES AND THEIR MANAGEMENT

2.7.1 What is a Crisis?

Within the UK, public organisations assume cross-sector roles in managing large scale crises. Government bodies such as the Cabinet Office, Home Office and local councils focus on predominately home-based issues while the MoD, DfID or the Foreign and Commonwealth Office (FCO) focus further afield. Supporting the resilience of the UK are the organisations which manage the CNI which maintains the strategic functioning capability of the UK through the management of energy production, oil, major transport nodes and public health.[307] For the Government, the MoD and its agents offer a very capable instrument to utilise during a crisis. Successful national interest is served by a secure and resilient UK and by the ability to shape a stable environment for UK industry and political interests.[308] This was a key element within the 2015 National Security Strategy, with the direction to *"*invest more in our current domestic resilience against global challenges which increasingly affect our people, communities and businesses."[309] At the strategic level, there is an integrated approach to crisis management as there is "no purely military evaluation of a great strategic issue or of a purely military scheme to solve it."[310] This has been painfully demonstrated during the events of the recent Iraq and Afghanistan campaigns where military action, without the correct political strategic vision and support, culminated in the failure to deliver success in either campaign. The crisis of political management and ineffective military leadership at the strategic level for the campaigns led to a crisis in confidence within the deployed military forces, which in turn emboldened the enemy that the UK were facing. This situation in Iraq was exacerbated by the failure of the UK political leadership to work their American equivalents, resulting in the US military losing confidence with the British forces by 2007.[311]

At a national level there is a need for an integrated approach to develop resilience across all UK sectors to build the capability and adaptability to prepare for and recover from a major natural or man-made disruptive event. In complex multi-agency situations, military planning can only address one element of

[305]Griffin, N. R., `Black Swans and Kingfishers: Risk and Decision Making – The Missing Link Between Operational Success and Strategic Failure', *Defence Research Paper*, Advanced Command and Staff Course Number 14, UK Defence Academy, Shrivenham, 2012.
[306]Ibid, p.8.
[307]Cabinet Office, *Strategic Framework and Policy Statement on Improving the Resilience of Critical Infrastructure to Disruption from Natural Hazards*, 2010, p.8
[308]MoD, JD*P 001, British Defence Doctrine*, 2011, p.1-4.
[309]Cameron D, *National Security Strategy and Strategic Defence and Security Review 2015*, 2015, p.9.
[310]MoD, JD*P 001, British Defence Doctrine*, 2011, p.1-11.
[311]North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, 2009; Ledwidge, *Losing Small Wars*, 2012; Ripley T., *Operation Telic: The British Campaign in Iraq 2003 – 2009*, Telic-Herrick Publications, Lancaster, 2016.

the desired outcome, that of delivering security. The review of the Iraq and Afghanistan campaigns identify that on both campaigns, a failure to correctly design a cross-departmental approach at political level, further hampered by weak military leadership and consultation by senior military officers during the initial planning phases.[312] When using the military in the UK, it is important, as demonstrated during the floods of 2015 – 2016 in the North West, that the requirement of the response is that of the local political leads and emergency services to direct the resilience activities. The military were there to support and provide niche capability to organisations affected by the events, rather than take the responsibility of the response.

Stephenson and Doern remark that there are many definitions of what is termed a 'crisis'.[313] The author uses the definition from the BSI British Standard, which defines it as an "abnormal and unstable situation that threatens the organisation's strategic objectives, reputation or viability."[314] Though this is the definition within the industry standard, the Cabinet Office, the Civil Contingency Secretariat (CCS), Civil Protection Lexicon states that a crisis is an "emergency of magnitude and/or severity requiring the activation of central government response."[315] This difference can cause confusion as the BSI version details a potential issue, while the CCS version details an event which is happening. This changes the actual qualities of the definition. Steven Fink leans more towards the BSI definition, seeking to place a crisis as a moment in time, rather than an actual event.[316] As a member of the Pennsylvania Governor's Crisis Management Team during the 3-Mile Island Incident, he has a key understanding of how quickly a crisis can spiral out of control. Based on his experience and knowledge, he defines a crisis as "a turning point", a prodromal situation that runs the risk of escalation; interfering with business as usual activities; external scrutiny; damage to company reputation; and damaging the revenue generation capability.[317] The real damage that a crisis can cause is the impact on the reputation of the organisation and the loss of the goodwill (intangible capital) of stakeholders. In 2005 some 53% of the value of the Fortune 500 corporations was accounted for in intangible capital. This was estimated at $24.27 trillion.[318]

Jenkins and Gersten raised the issue that apart from the organisational and operational issues raised above, there are security threats to the infrastructure that exists within the rail industry.[319] As a critical

[312]North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, 2009; Ledwidge, *Losing Small Wars*, 2012; Ripley T., *Operation Telic: The British Campaign in Iraq 2003 – 2009*, 2016; King A., *Command: The Twenty-first Century General*, 2019; King A., Military Command in the Last Decade, *British Army Review*, 2011, pp20 – 31; Elliott, C. L., *High Command: British Military Leadership in the Iraq and Afghanistan Wars*, 2015; Fergusson, J., *A Million Bullets – The Real Story of the British Army in Afghanistan*, 2009.
[313]Stephenson, A., *Benchmarking the Resilience of Organisations*, 2010, p.14: [313]Doern, R., `Entrepreneurship and Crisis Management: The experiences of Small Businesses During the London 2011 Riots', *International Small Business Journal*, Vol 34 Issue 3, 2016, p.276.
[314]BSI, *British Standard 11200:2014 Crisis Management,* 2014, p.2.
[315]Cabinet Office, *UK Civil Protection Lexicon*, Version 2.1.1, 2013. Available at www.cabinetoffice.gov.uk/cplexicon (accessed 12 Jan 2014).
[316]Fink S, *Crisis Management - Planning for the Inevitable*, 2002.
[317]Ibid, pp 16-17.
[318]Regester M. and Larkin J., *Risk Issues and Crisis Management: A Casebook of Best Practice*, 3rd Ed., Kogan Page Ltd, London 2005, p.2
[319]Jenkins B. M. and Gersten L. N., `Protecting Public Surface Transportation Against Terrorism and Serious Crime: Continuing Research on Best Security Practices', *MTI Report 07*, Mineta Transportation Institute, College of Business, San Jose State University, California, 2001

strategic asset for freight[320] and commuters[321], the rail network offers a determined terrorist the opportunity to deliver a strategic impact with minimum effort. The public transport sector, rail bound traffic included, has become a theatre of operations for terrorists, aiming at causing mass-casualty events.[322] An attack would have serious consequences to the UK economy due to its importance; in 2019 there were over 1.8 billion journeys made on the network, while over 15 million tonnes where moved on the network in the 2019-20 Q3 period alone.[323]

2.7.2 How Does a Crisis Develop?

Shrivastava and Quarantelli create an image of chaos and disaster when a crisis point is reached, whereas Fink argues against the way that crises are portrayed in crisis research literature.[324] Fink argues that a crisis is not necessarily a negative situation, rather it is a decision point in time characterised by a certain degree of risk and uncertainty.[325] Fink also discusses that a crisis point is created by the effects of the organisation's own activities, or the effect of environmental forces on its activities, which results in an increase in the level of potential risk to the organisation. Due to the manner of operations or the factors, there is not a full information picture available, creating the moment in time that can decide whether the venture is a success or failure. This point in time, the crisis point, requires a decision to be made and direction to be given to the organisation. An individual, team or organisational who can plan for a potential turning point has a far better chance of capitalising on this moment.[326] Building organisational resilience is enhanced by developing the skills within the organisation to enable multiple individuals the capability to identify turning points to prevent operational issues becoming strategic crises.

Turner highlights the importance of situational awareness of the leadership to identify what problems the business faces at any given moment. [327] To manage the development of situational awareness, there is the need to utilise high-grade intelligence to build greater understanding of the operational environment. As in the way that the military utilises intelligence gathering agencies to build a commonly recognised integrated intelligence picture, businesses need to invest in information cross-referencing, asset sharing and detailed analysis to develop the intelligence to support evidence-based decision-making. Turner's investigation into three disasters identified similarities across the three events, namely, rigid organisational framework, loss of focus of the main issue, unwillingness to seek external advice, inadequate sharing of information and awareness of other issues.

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[320]In 2013/14, 22.7 billion net tonne kilometres of freight were moved by rail – Department for Transport, Transport Statistics Great Britain 2014, National Statistics Office, London, 2014.
[321]In 2015/16, 1,689 million passenger journeys were made on National Rail and London Underground networks – Department for Transport, Rail Statistics Report RAI0101, Department for Transport, London, 2016, p.1.
[322]Jenkins B. M. and Gersten L. N., `Protecting Public Surface Transportation Against Terrorism and Serious Crime', 2001.
[323]Figures obtained from https://dataportal.orr.gov.uk/statistics/usage/passenger-rail-usage/
[324]Shrivastava P et al, `Understanding Industrial Crises', *Journal of Management Studies*, Society for the Advancement of Management Studies, John Wiley and Sons, 25:4, 1988. Available at www.onlinelibrary.wiley.com; Quarantelli E, `Disaster Crisis Management', Preliminary Paper number 113, Disaster Research Centre, University of Delaware, 1986. Available at www.udspace.udel.edu/bitstream/handle/19716/487/pp113.pdf; Fink, S., *Crisis Management*, 2002.
[325]I Fink, S., *Crisis Management*, 2002, p.15.
[326]Ibid., p.15.
[327]Turner, B. A., `The Organisational and Interorganisational Development of Disasters', *Administrative Science Quarterly*, Volume 21, Number 3, 1976, pp 376-397.

Stage	Description
1	Notionally normal starting point: (a) Initial culturally accepted beliefs about the world and its hazards. (b) Associated precautionary norms set out in laws, codes of practice, rules and folkways,
2	Incubation Period: The accumulation of an unnoticed set of events which are at odds with the accepted beliefs about hazards and the norms for their avoidance.
3	Precipitating event: Forces itself to the attention and transforms general perceptions of Stage 2.
4	Onset: The immediate consequences of the collapse of cultural precautions became apparent.
5	Rescue and Salvage – First stage adjustment: The immediate post collapse situation is recognised in ad hoc adjustments which permit the work of rescue and salvage to be started.
6	Full cultural readjustment: An inquiry or assessment is carried out, and beliefs and precautionary norms are adjusted to fit the newly gained understanding of the world

Table 8: Turner's Six Stages. Source: Turner

These factors created situations which critically impacted on the capability of the leadership to manage the unfolding scenarios. Within his research, Turner created an early disaster sequence to describe the stages of crisis. Focussing on a failure of foresight, he discusses how organisations fail to act, even when faced with warning indicators (Table 8).

In 1987 Mitroff, Shrivastava and Udwadia discussed how the culture of the organisational leadership is the most influential factor on how a crisis is managed.[328] They argue that corporate culture has been more focussed on financial performance and growth, rather than crisis management, even though corporate crises are precipitated by people, organisational structures, economies and/or technologies that cause extensive damage to human life, natural and social environments.

[328]Mitroff, I. J., Shrivastava, P. and Udwadia, E. E., `Effective Crisis Management', *Academy of Management Executive (1987 – 1989)*, Volume 1, Number 4, 1987, pp 283 – 292.

Stephenson adapted Mitroff and Pauchant's Crisis Management Onion Model (Figure 18).[329] When aligned against the cultural model at Figure 6 (p.32), similarities can be seen in how organisational culture can impact crisis management. This model allows an individual to examine how prepared the organisation is by studying the various structures that align to the four stages of the model.

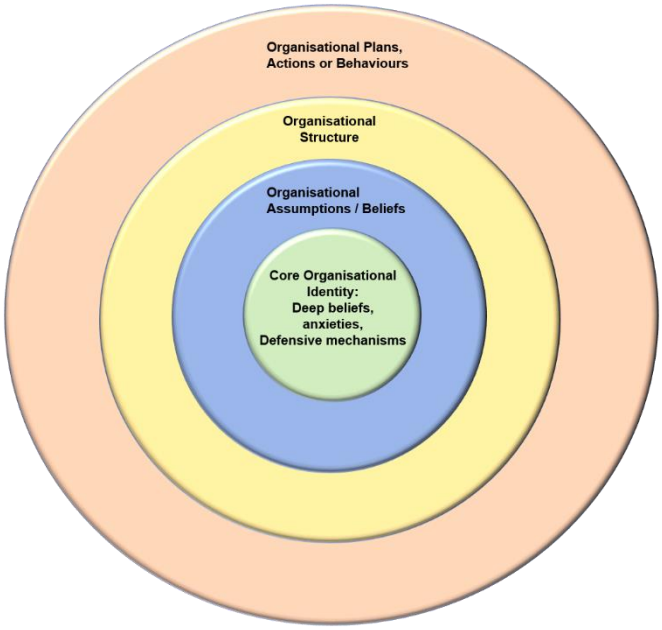


Figure 18: The Crisis Management Onion Source: Mitroff and Pauchant

The art of crisis management became a very public issue with the rising trend of global terrorism, marked by the attack on the World Trade Center in 2001. The changing nature of the threat has resulted in the UK military to change how it managed its operational training, with units having to consider deploying to conflict zones where the civilian population was an active target for hostile forces. Examples are non-state actors and fundamentalist organisations targeting global companies to hurt the political framework and support from the population. The attacks on oil infrastructures within Nigeria,[330] the bombing of the HSBC in Istanbul[331] and the attack on the Marriott hotels within the Middle East[332] are demonstrations of this phenomenon.

2.7.3 What Does Good Crisis Management Look Like?

McManus discusses how to improve organisational capability by learning how to deal with crises by understanding the types of emergency situations that may occur. [333] The situation that faces numerous corporations in the globalisation era sees corporate reputations becoming more fragile and open to risk and an increasing number of crises; events such as BP's Deep Water Horizon, Shell's over stating of its reserves and Railtrack's and Carillion's collapse demonstrate the variety of crises that organisations face. Regester and Larkin discuss the importance of learning, though in their studies of business they identified that business has failed to learn from its past mistakes. [334] Leaders need to consider several dynamic forces that provide an external impact on their organisation. Political, regulatory, economic,

[329]Stephenson, A., *Benchmarking the Resilience of Organisations*, 2010, p.20; Mitroff I. J. and Pauchant,T., *We Are So Big and Powerful Nothing Bad Can Happen To Us*, Carol Publishing, New York, 1990.
[330]Multiple attacks on the Nigerian infrastructure by the Niger Delta Avengers, seeking to force greater sharing of resources with the local population. The impact was the reduction of the daily output from 2.2 million barrels to 1.6 million barrels.
[331]In November 2003 four bomb attacks were conducted in Istanbul, Turkey. The first two on 15 Nov were targeted against synagogues. On the 20 Nov two further bombs exploded outside the HSBC headquarters and the British Consulate. A total of 57 were killed and 400 wounded in the attacks.
[332]On 20 September 2008 a large vehicle borne bomb was detonated outside the Marriott Hotel in Islamabad, killing 54 individuals and wounding another 266. Evidence presented indicated it was detonated by a suicide bomber.
[333]McManus, S. T., *Organisational Resilience in New Zealand*, 2012.
[334]Regester M. and Larkin, J., *Risk Issues and Crisis Management*, 2005.

social and technological factors shape how an organisation operates, as well as the behaviour and the culture of the employees within the business. [335]

Briggs argues that accurate information, corporate governance and the interdependence between security risks and operating procedures are key to building organisational resilience.[336] Another key element of building sustained resilience is the integration of the entity into the community within which it operates. By becoming part of the community, the company changes from a target to a partner. Non-government organisations (NGOs) manage their security in this way, seeking to become accepted by the wider community and reduce the threat of attack.[337]

Lagadec notes that the first element of good crisis management is being able to identify an emerging crisis before working out how to manage the multiple components that then become involved.[338] He discusses how well-trained and experienced organisations reflect military approaches, with control centres and `war-rooms', trained personnel and multiple emergency plans. However, when faced with an actual crisis, they struggle to manage the situation. Unlike the military, which regularly test response plans, exercise and red-team key strategies, as well as the culture of being comfortable with uncertainty and the development of a risk aware culture, large organisations seek to revert to a status quo, to find a means of balance and remove the risks at hand. Underlying cultural beliefs, standardised processes, pre-defined operating rules and antagonistic working relationships all add to the impact that a crisis causes.[339] Within the crisis management team there is a desire to do something to address the issue. The military however have learned that in complex crises, sometimes the best action is not to act, but to understand the dynamics of the crisis and the relevant network of actors and activities involved. Events such as the Iraq and Afghanistan conflicts, as well as humanitarian events which include the military response to the Ebola outbreak, have shown how there is a need to change the approach when dealing with `Wicked Problems'. Camillus describes a wicked problem as an issue that traditional problem-solving techniques or strategies are unable to address.[340]

The military also refer to the future character of war as a `Wicked Problem' as the impact of warfare amongst the population, with increasing asymmetrical actions by a fourth or fifth generation opponent results in each action causing additional problems and chain reactions. While complicated problems can be solved with strategies and problem-solving techniques, Wicked, or unbounded, problems are events where each action impacts on the situation, thus changing the shape of the problem that is being faced. Effective crisis management is required to address such problems. Adaptive thinking processes, devolved leadership, evidence-based decision-making and bespoke responses are key to managing

[335]Ibid, p.7.
[336]Briggs R. and Edwards, C., *The Business of Resilience,* 2006, p.33.
[337]Ibid, p.38.
[338]Lagadec, P., Learning Processes for Crisis Management in Complex Organisations, *Journal of Contingencies and Crisis Management*, John Wiley and Son Ltd, Volume 5, Number 1, 1997, pp24 – 31. Available at www.onlinelibrary.wiley.com. Accessed on 10 January 2016.
[339]Ibid, p.25.
[340]Camillus, J. C., Wicked Problems, Harvard Business Review, 2008, pp 99 – 106, available at www.hbr.org accessed on 12 September 2015.

complex crises which present wicked problems to be managed. The critical acceptance of managing complex crises is the realisation that each event is unique, and therefore each response is also required to be unique. While it is possible to train and educate for potential events and actions, when faced with a wicked problem, the adaptive mental capacity of the leader is key to success. The creation of such an approach relies critically on the development of the leadership of the organisation, at all levels, to enable a holistic and adaptive approach to such complex situations.

2.8 THE IMPORTANCE OF ADAPTABILITY AND CONTINUITY

The initial exploration for information on the topic of Organisational Resilience in 2013 focussed on obtaining the relevant documentation that was used within the military around the subject of fighting capability, operational resilience and the management of risk and consequences on the battlefield. During this initial search, it was also identified that the military possessed a doctrine publication, Joint Service Publication (JSP) 503,[341] which was first issued in 2000, pre-dating the UK national standard BS:25999[342] by almost seven years. This reflects the awareness of Defence in building and maintaining capability, through the ability to adapt and build situational awareness during disruptive events; a situation that would be common on the battlefield and large-scale military operations. The MoD regarded Business Continuity as "the effective management of business risks and, as such, falls squarely within the realms of good Corporate Governance and Risk Management."[343] The revised JSP aligns itself against the principles of BS:25999, ensuring there is a common picture of Business Continuity across Defence and Government. The creation and subsequent presence of such a document within the MoD, along with its pragmatic approach to Business Continuity, indicates a culture of acceptance and awareness of risk management within the organisation. Unlike the British Standard, the JSP clearly states that the priority areas for the MoD BCM strategy were "People, Processes and Resources," focussing on people as the primary element due to their ability to give the organisation the agile edge and function, even when systems are degraded. The UK Standard focuses more on the systems and placing the framework into organisations but does not articulate clear priorities of any BCM strategy as does the military publication.

The military also possessed direction via their doctrine publications on managing crises and how to plan and execute campaigns to address them, though these were more aligned to strategic and operational warfighting events.[344] Fundamental to its strategic approach was the creation of the Strategic Trends Programme to help inform military and government long term planning. It is managed by the Development, Concepts and Doctrine Centre (DCDC) and is created by a think tank group of military, political and academic specialists. It seeks to identify risks and possibilities in the near, mid and far regions, normally 30 years out from the time of writing. No such document was found within the government channels, with the Cabinet Office Insight Team using the DCDC document as the baseline

[341]Ministry of Defence, *Joint Service Publication (JSP) 503: MoD Business Continuity Management*, 5th edition, Main Building, Whitehall, London, 2011.
[342]British Standards Institution Standards Publication, *BS25999: Business Continuity Management.* The British Standards Institute, London, UK, 2007. Available at www.bsi.org.uk (accessed on 10 May 2016)..
[343]MoD, JSP 503, 2011, p.2
[344]MoD, *JDP 5-00 Campaign Planning*, 2013; MoD, *JDP 3-00 Campaign Execution*, 2009.

for long-term trends analysis. Research into the rail industry and DfT also indicate that no long-term strategic analysis existed, with limited industry direction on building resilience. As initially identified in Chapter 1 and further discussed in Chapter 5, documents from the Office of Rail and Road[345] identified that there was a disconnect between franchise periods, Network Rail planning cycles and government strategies, which increase the complexity within the rail industry and drives the requirement for an adaptable planning capability by the strategic management of the rail industry to enable continued successful growth.

As McManus and Stephenson have both identified, flexibility of leadership and processes, as well as integrated strategies, are key to the development of organisational resilience, enabling an organisation to adjust to the unfolding situation and share the workload across the various departments and teams.[346] The integrated approach seeks to implement a similar methodology, by pulling together the components of government, military and non-government organisations to deliver a focussed approach, to maximise the delivery of smart power, resourced effectively to deliver success. Critical to that success is the flexibility within the structure to adapt to the environment as it changes and ability to maintain the continuity of effort. The Army recognises this need, with ADP Land Operations promoting the need for flexibility as a key component of the plan, enabled by the adaptability of the forces and the commander.[347] In contrast, the UK Government's paper on the resilience of the transport sector does not promote either concept of adaptability or continuity for the rail industry.[348]

2.9 SUMMARY

This element of the thesis has explored the literature around understanding the key components of building the bedrock of organisational resilience. The review of the literature has identified a strategic core that is required to develop effective resilience. The effective development of the organisation's vision and strategy, delivered through the leadership framework, taking into consideration the complexity and impact of its cultural web is critical to setting the basis for effective resilience. Evidence from the military through the review of the British Army in 1914 – 1918, and the contemporary situations in Iraq and Afghanistan, has identified this importance within the military. Likewise, the evidence captured from the several industry examples have also reflected that through clearly understanding the importance of the strategic core activities and their interconnectivity, organisations can begin to appreciate the critical components of building resilience across the establishment. This is developed through the development and implementation of the required leadership style, endorsed through the executive team, mapped to the required strategic outcomes to deliver the organisation's vision. This is promoted throughout the organisation by various activities aligned to the cultural framework. Failure to do this correctly can result in the creation of a disruptive resistance to change.

[345]Office of Rail and Road, *Costs and Revenues of Franchised Passenger Train Operators in the UK*, Office of Rail and Road, Department for Transport, 2012, p.18.
[346]McManus S.T., `Organisational Resilience in New Zealand' 2008; Stephenson A., `Benchmarking the Resilience of Organisations', 2010, pp 71-73.
[347] MoD, *ADP Land Operations*, 2010, 2A-5.
[348]Department for Transport, `Transport Resilience Review', 2014.

This section also reviewed the development of crises, how they are affected by the impact of organisational culture and how they are required to be managed. The review has discussed the impact of complexity within the management of business through globalisation and how it can impact on the decision-making process. By analysing how the military approaches the development of its leadership and management teams to understand and manage risk, through a risk aware mentality, along with the level of education and training around crisis management, businesses can begin to build their own understanding of the need to develop a culture of resilience that is developed from the frontline upwards throughout the organisation.

Research within UK industry and the military have identified glaring differences in the understanding of resilience and the need for continuity. The presence of its own directive on risk management, business continuity, disaster relief and crisis management demonstrate the effort the military give to building resilience within the organisation at all levels. The culture is further enhanced by the promotion of an adaptive leadership framework, often referred to as “Mission Command”, to enable junior frontline commanders the ability to make decisions to maintain momentum and manage events before they become crises. Few examples of similar publications and directives existed within the rail industry, and, as the research findings will testify in Chapter 7, this was not unexpected. The lack of consideration in government reports for the need for flexibility and continuity within the rail industry when faced with disruptive events demonstrates a lack of understanding of the core components of building a resilience culture. Recent investigations by Government and independent research into the transport sector, particularly the rail sector, noted a lack of situational awareness and learning lessons from previous examples, like those observations identified by McManus and Stephenson in their work.

The culture of the organisation and the ethos created by the senior leadership is critical to the building of organisational resilience. This is required to develop the organisation's capability to prepare, respond, adapt and to learn from disruptive events. The literature review has shown that while the military have sought to build a strong framework through strategic processes and analysis, supported by tactical practices and procedures captured in the doctrine publications, it still relies on the capability of the leadership to enable the organisation to deliver the right level of flexibility to adapt to a crisis. This level of detailed framework development was not present within the rail industry and government documentation reviewed, which has impacted on the resilience of the rail industry.

At the operational (military) or function (industry) level, the review identified that there are also several clear frameworks required to turn strategy into effective activities to deliver resilience. The need for assuring the organisation there is a clear understanding of risk, issues, vulnerabilities and recovery priorities can develop a level of organisational assurance. There is a level of agility required, through effective incident response and management activities, supported through the correct organisational structures and governance frameworks. The development of the correct approach, either on the battlefield or in the boardroom requires effective planning, communication frameworks and regular engagement with key individual. Finally, in order to deliver the required effect, there is the need to

properly invest in the Social Capital of the organisation. These components, identified from the literature review, provide the skeleton of an Organisational Resilience management framework. The follow-on chapters will explore the design and development of this framework.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The chaos of the Balkans in the middle of the 1990s resulted in the need for the military to adapt to a different method of delivering resilience on a very congested battlefield, changing its mentality from the large-scale Cold War manoeuvre-based warfare to cross-organisational, inter-agency operations, requiring a change in operating methodology, technology, training, development and education of its staff. The Comprehensive Approach required a holistic approach not just to its implementation, but also its preparation, an element that was overlooked during the initial periods of the Iraq and Afghanistan campaigns. A detailed analysis of the Comprehensive Approach demonstrated that lessons could be learned for building a framework for an organisation.[349] This chapter identifies the methods used to analyse findings from the various research activities undertaken during the research period.

3.2 RESEARCH OBJECTIVES AND STRATEGY

This research identifies what factors are required to build organisational resilience, using the Comprehensive Approach as a model. If applied correctly, the Comprehensive Approach doctrine demonstrates strong potential to develop resilience within a shattered community, as it seeks to re-establish the tenets of the society that previously existed prior to the conflict. This offers the capability to apply a similar approach to an organisation with the intent of building resilience at organisational level. Although the BS:65000 standard delivers the conceptual framework, an important factor of the concept of organisational resilience is moving it from being a theoretical concept captured in academic research to becoming an operational framework with an understanding of how organisations can deliver tangible outcomes. The development of the organisational resilience model in this research aims to deliver this, utilising the findings from the research to inform the development and creation of tangible products, enabling the building of resilience. To deliver the required level of research and analysis, several questions require addressing to identify the lessons from military units on operations and their capability to build and sustain organisational resilience that could be adapted for the rail industry. [350] To obtain the relevant information, the following activities were conducted:

- Analysis of the current understanding and writings on organisational Resilience;
- Analysis of the current organisational resilience situation within the GB rail industry;
- Analysis of the Comprehensive Approach through military case studies;
- Identification of methods the UK military employ to build Organisational Resilience; and
- Observations of UK military organisation operating within complex situations and how they manage to maintain organisational resilience capability.[351]

[349] Gracey A., `Operationalising the Comprehensive Approach,' Post Graduate Research Paper, MSc Leadership and Management Programme, University of Portsmouth, Portsmouth, 2013.
[350]Gracey A., `The Application of Smart Power', Post Graduate Research Paper, International Politics, strategic Relations and Modern Conflict Programme, King's College London, London, 2012.
[351]Gracey A., `Five Years On, Lessons From Iraq.` *British Army Review Special Report*: *Lessons from Combat, Volume 3*, Ministry of Defence, Warminster, 2014.

The above tasks have been conducted as elements of the research for this thesis, with Chapter 2 addressing the analysis of the current writings on Organisational Resilience and the core components required to develop Organisational Resilience. Chapter 4 analyses the case study organisations, setting the scene for the remainder of the thesis which develops the ORM3 framework.

Two key research methodologies were identified that could best suit this thesis; Grounded Theory and Action Research. Grounded Theory is a research methodology associated with qualitative research,[352] with the researcher seeking to obtain the theory from empirical data collected in the field.[353] It allows theories based on previous research to be carried into current research, provided said theories are relevant to the current research topic.[354] One issue identified when researching this methodology was the difficulty of its application with regards to the review of current literature, an issue also identified by Ciaran Dunne.[355] There is also the issue as to what is "classical Grounded Theory" with the split between the two originators over how it should be applied, which in turn has caused confusion regarding how to apply the methodology.[356]

Due to concerns around potential applications of the Grounded Research theory, as well as the impact that this research was having on the understanding of resilience within the strategic circles of UK industry, it was decided to follow a more Action Research approach. While Grounded Theory seeks to develop a theoretical approach to research, there is concern regarding the fact that it is difficult to conduct definitive planning as it is difficult to predict in advance.[357] Action Research seeks to solve an issue or problem that has been identified within the group. This methodology is seen as a more involved approach, focussed on solving practical issues.[358] As discussed in Chapter 2, Organisational Resilience is a leadership / management construct, therefore Action Research is better suited as it enables the exploitation of the research to build a greater level of practical knowledge.

The research approach, due to the dynamic environment within the business world, leant itself towards the applied nature of Action Research. Sampling audiences were identified from the military staff involved in the preparation for operational deployment while data collection and analysis methods were implemented. Unlike a grounded theory approach, each data collection was then analysed, lessons identified and applied. This enabled the lessons to be used to develop incident management training, advise on building Organisational Resilience and the consultation on the national standard during the research gathering phase. As the research created changes during the information gathering phase, the Action Research approach enabled the inclusion of this knowledge and impact caused by its application. This thesis has focussed on an Action Research approach to maximise the experience of

[352]Dunne C., `The Place of the Literature Review in Grounded Theory Research', *International Journal of Social Research Methodology*, Vol 14, No.2, 2011, p.111.
[353]Ibid, p.111: Strauss A., and Corbin J., Grounded Theory – An overview, p 273.
[354]Strauss A., and Corbin J., Grounded Theory – An overview, p 273
[355]Dunne C., 2011, p.111.
[356]Ibid., p.113.
[357]Denscombe, M., *The Good Research Guide*, second edition, Open University Press, Maidenhead, UK, 2005, p.127.
[358]Ibid., p.73.

individuals involved in the research. Due to the organisations engaged, and the circumstances of the research, care was taken to ensure the research findings from the study of the military to develop resilience training for the business sector did not compromise security protocols for individuals or research units. In their book *Becoming Critical. Education, knowledge and action research*, Carr and Kemmis provide the following definition of the process:

> "Action research is simply a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out."[359]

Action research has an extensive history in many fields of social research practice with several approaches having been identified.[360] The initial idea of action research is attributed to the social psychologist Kurt Lewin in 1946, when he was involved in community action programs within the United States.[361] In their work, Kemmis and McTaggart identified that four distinct generations of action research had developed. The first was the original methodology as described by Lewin, the second building on a British tradition of action research in organisational development began in the UK. The third generation resulted in the adapting of the British model by Australian and European researchers, with the fourth generation emerging from the connections between critical emancipatory action research and participatory action research in social movements.[362]

The fundamental idea behind action learning is to bring individuals together to learn from each other through a sharing of experiences. It is based on the early work of the advocate Reg Revans, who saw the current methods of management inquiry failing to solve the issues facing organisations.[363] Prior to the beginning of primary research through engagement with the military personnel, a period of secondary research, utilising MoD publications, Government reports and discussions with members of the Cabinet Office and the EPC enabled identification of the level of knowledge around the subject of Organisational Resilience and the requirement for strategic leadership to develop the culture. This was supported by a review of literature from the US military, Australian Armed Forces and the governments of Australia and New Zealand to help build an understanding of the situation of Organisational Resilience within other Western cultures.

3.3 DATA COLLECTION PROCEDURES

Having decided to adopt an Action Research approach to the doctoral studies, there was a split between the availability of quality sources. For the review of military practices, procedures and performance, as well as leadership, material from the 1970s onwards was utilised. For the subject of Organisational

[359]Carr, W. and Kemmis, S., *Becoming Critical. Education, Knowledge and Action Research*, Lewes: Falmer, 1986, p.162.
[360]Kemmis S and McTaggart R., Participatory Action Research: Communicative Action and the Public Sphere,2007, p.271, downloaded from www.corwin.com.
[361]Ibid., p.272; Action Research report, Infed, www.infed.org, accessed on 09 January 2014.
[362]Ibid., p.272.
[363]Ibid., p.274.

Resilience, military and government documentation of 2004 – 2016 was reviewed, with academic papers of 2009 onwards being identified, highlighting the emerging aspect of organisational resilience. Further quality papers and documents that pre-date the emergence of Organisational Resilience were included if they were deemed appropriate to this research, having been identified through online electronic searches and reviewing other professional and academic reports. Engagement with professionals within the New Zealand ResOrgs via internet and email also enabled a development of understanding, with identification of UK based researchers identifying a similar trend.[364] This was supported by engagement with leading representatives of the Civil Contingencies Secretariat[365], the EPC[366] as well as discussions with consultant organisations such as Price Waterhouse Coopers[367] and Ernst Young.[368]

To enable the researcher to access the thoughts and opinions of other professionals and academics there was engagement with professionals such as Amy Stephenson[369], Rob MacFarlane[370] and Charlie Newnham[371] who offered critical reviews of ideas and advice on literature to review. The researcher also engaged with the Office of the Mayor of London's Resilience Team's study into city resilience, under the 'Project Anytown' title. This data was further enhanced through attendance at RUSI and EPC resilience focussed events and workshops.

Linked to any literature review is the consideration that the selection and application of research methods within a project may often influence the collection and results obtained. It is also critical to accept that while a methodology refers to a description of methods utilised in the activities involved in the gathering of results, based on the research conducted, it may also refer to the concepts and principles that have been applied during the process of information gathering and review. These results can be further impacted by the preconceptions of the researcher, which can be strongly influenced by their own knowledge of the subject and the research techniques being used. This is key to understanding the presentation of the research findings as this could also reflect the view of the researcher and any researcher influenced bias. As this topic is heavily focused on the interaction of the organisation with others at the corporate and individual level, to successfully deliver resilience management it is appropriate to utilise social sciences research strategies. The topic of the research project, coupled with the current political and economic environment within which it is being conducted, dictates that this research should be conducted with a particular methodology.

[364]Amy Lee
[365]Dr Robert MacFarlane
[366]Mark Taylor, William Baker (Incident Management) and Linda Vognyer (Business Continuity).
[367]Robert Crask and Charlotte Newnham.
[368]Robert Gaddum, Claudia Van Den Heuval and Joanna Collins.
[369]Founder of Stephenson Resilience and author of the PhD "Benchmarking the Resilience of Organisations" 2010.
[370]Assistant Director, Resilience Training and Doctrine, Civil Contingencies Secretariat, Cabinet Office, author of the BS 65000 Organisational Resilience.
[371]Author of MSc Report "Gold or Dust? Creating Resilient Organisations: Predicting a leader's propensity for behaviours that create organisational resilience."

3.4 RESEARCHER'S INFLUENCE

To enable an understanding of the bias that the researcher may bring to the research, it is important for the reader to also understand the researcher's role and focus within the research and the conducting of the research activities. The researcher was a member of the Military Reserve, having previously experienced the limited level of professional military training in delivering the Comprehensive Approach. In 2008 there seemed little importance given at the military Staff Colleges to the understanding and planning to embark on a COIN campaign against a 2nd Generation insurgency, which was capable of co-ordinating activities across the strategic spectrum utilising the many tools of globalisation. Post completion of the Staff College course, the researcher spent four years training teams for operational deployment in Iraq and Afghanistan at the tactical and operational level. In 2018 – 2019 the researcher was a member of the Army Headquarters' Training Evaluation Branch, which conducted regular assurance reviews on military training and education establishments.

As part of the lessons learnt and implemented framework of the military, there exists a training and development organisation that focuses on Collective Training and Learning, often used to prepare organisations for operational deployment. The Command and Staff Trainer (CAST) establishment consists of two locations, one in Warminster (south) and one in Catterick (north). CAST works in conjunction with the Combined Arms Tactical Trainer (CATT) to develop, practice and enhance the capability of Tactical (Battlegroup) and Operational (Brigade) Headquarters staff. The CAST and CATT establishments sit under the command of the Command Staff Tactical Training Group (CSTTG) located at the Land Warfare Centre (LWC). This organisation was charged with the training of Tactical and Operational headquarters staff for the planning, execution and running of operation campaigns and tactical battles, and the Command and Staff Trainer (South) (CAST(S)) was the ultimate position for training staff. The researcher was stationed at CAST(S) from 2010 -2012, having previously been involved in training specialised personnel at the Royal School of Artillery (RSA) from 2008 - 2010. Each member of the team was regarded as a Subject Matter Expert (SME) in their field, and all had to be highly experienced in the planning and decision-making process.

As part of the military's continuous improvement process and to learn lessons from experience, members of the team would regularly deploy into theatres of operations to capture lessons and new procedures, feeding them back into training to help reduce the time it took for feedback to clear through the system and the adaptation of good practice. On numerous occasions the CAST(S) staff were also able to adapt and improve training methods, increasing capability in the field for the commanders. Part of this process was the development of the doctrine advice document for Command Staff, *The Combat Estimate User's Guide*. It guided the user, who may range from a junior commander on the frontline to a senior officer who may be in the rear echelons, on how to utilise the decision-making process to help develop an effective plan in a timely manner. The handbook goes in depth into the process to help identify the reasons behind the application of each step in the cycle.

The researcher was engaged as a senior SME in human terrain analysis (HTA), joint targeting procedures and the application of influence on the battlefield. The researcher was also viewed as an advisor when it came to Red Team doctrine. By reflecting on his own knowledge, experience and the lessons that he was involved in delivering, the researcher sought to identify the lessons the rail industry could learn from the military approach to command and control, the application of contingency planning, resilience management, communication between departments and the impact of culture and behaviour on organisational resilience. The ability of military commanders, through training and education, would seem to indicate that they are more capable of responding to dynamic situations, adapting to an environment of limited information and making critical decisions, based on the application of `Mission Command' as indicated by Ivan Yardley, which is at the heart of its decision-making process.[372]

Within the observed phases of the "Live Case studies" and interactive workshops, the researcher was very aware of the impact that he could have through the Hawthorne (observer) effect. To ensure that all reasonable steps were taken, the researcher sought to remain in the background during some of the military observed events, utilising the command and control facility at the LWC to observe, listen and to identify various issues within the party under surveillance. A second approach used during the observation of the military was to be a member of the training staff, thereby removing the external element created by the Hawthorne effect. The third method employed when working with military personnel on the tactical and strategic courses was to become a course delegate, to function alongside the parties for the training period, obtaining their thoughts and processes when considering certain issues given to them. These various approaches enabled the researcher to observe teams in their natural hierarchical environment, reacting to training situations where the focus was on the resolution of the task at hand, not the observer in the room. These methods also enabled candid feedback on the current situation, enabling the researcher to correlate the information offered in the various questionnaires that were returned.

3.5 ACCESS ISSUES

To enable a thorough study of practices, procedures and social interaction, access to the correct individuals within both organisations at the right level, with the right experience, was required. While resilience, incident management and contingency planning skills are widespread within the military, this was not the same for the rail industry. In the military these skills are deemed critical for any officer, and for many junior managers. Within the rail industry, these skills were restricted to a limited number of individuals, mainly clustered within the Operations element of the various companies. The researcher attended military training events to observe the command and control teams being placed into positions where they were constantly being faced with `*Wicked Problems,*'[373] `*Rising Tide'* events or unforeseen events. As the delegates went through the 10-day exercise process the researcher was able to move

[372]Yardley, I., 2010, The Wider Utility of Mission Command, PhD Thesis, 2010, p.120.
[373]Conklin J., *Wicked Problems and Social Complexity*, Cognexus, 2005, Available at www.cognexus.org (accessed on 22 Feb 2014).

freely among the group, asking questions and discussing the actions and decisions of the teams and their various commanders.

As part of his role within the rail industry, the researcher developed training for individuals tasked to deliver incident management, emergency planning and response practices within the company. This enabled discussion of the relevant issues identified with senior managers with respect to what shortfalls existed, and the risks and potential threats that the company faced. Through engagement at the senior level, the researcher was able to discuss the situation with various elements of the company, as well as run an investigative questionnaire for comparison with the military. The researcher's position also enabled contact with members of the EPC, Senior Members of the British Transport Police and British Fire Service leadership organisations, as well as members of the Cabinet Office to help investigation into the current situation of resilience within the railway sector.

To provide a wide base of knowledge on the areas of social interaction, collaborative working, problem solving and decision-making, the author utilised several methodological tools to enable an in-depth analysis into these areas within the military, and their application to the rail industry. Archival sources have been retrieved from the British Library, the EPC Resilience Library and DefAc's central library. Coupled with this an extensive international literature search produced numerous secondary documents that assisted in grounding the research into existing and contemporary discussions, enabling a better understanding of the lines of development for both military and railway practices and procedures. In support of the development of the hypotheses, research articles into the individual qualities of leadership, management and competencies were reviewed.[374] These documents enabled an understanding of the gaps and requirements that have been previously identified and discussed by key individuals within their field of investigation. Previous reports on the delivery of exercises and the effectiveness of the integration of organisations within the application of the Comprehensive Approach were also reviewed, informing the live case study development.

Military doctrine publications provided secondary evidence, supporting the creation of several diagrams that are included within this thesis. The doctrine identified key crisis management organisations and practices utilised within the military, enabling the development of the framework for the live case study complex issues.[375] Military doctrine publications also informed the research on the various cycles used for the development of resilience capability. Secondary evidence gathering was obtained from key research publications on the topic of competency and leadership capability and other research theses which informed the leadership questionnaire and the Battlegroup (BG) observation framework model.

[374]Burke, E., Competence in Command: Recent R&D in the London Fire Brigade, *Journal of Managerial Psychology*, MCB University Press, Vol. 12, No.4, 1997, pp. 261 – 279; Australian Government, *Organisational Resilience: Australian Case Studies*, Attorney General's Department, Australian Government, Commonwealth of Australia, 2011: Resilient Organisations, *Resilience Benchmark Tool*, Resilient Organisations Research Programme, University of Canterbury, New Zealand, 2012, downloaded from www.resorg.nz; Sheffi Y, `Building a Resilient Organisation', 2007, pp30 – 36.
[375]Ministry of Defence, *Joint Discussion Note (JDN) 4/05 The Comprehensive Approach*, 2006; Ministry of Defence, *Joint Defence Publication (JDP) 3-00: Campaign Execution*, 2009; Ministry of Defence, *Joint Doctrine Publication (JDP) 5-00 2nd Edition: Campaign Planning*, 2013.

3.6 SOCIAL SCIENCES RESEARCH STRATEGIES

The use of Action Research enabled the utilisation of several research strategies in a mutually supporting mechanism to obtain data on how the military developed its Fighting Power capability for operations. Through the review of previous research, it was observed that in the field of Organisational Resilience, there had been use of case studies supported with either questionnaires only,[376] questionnaires with surveys,[377] self-assessment surveys, interviews and surveys[378] or case studies and observations.[379] These differing approaches enabled the collection of primary data for the research project. This research approach also used multiple methods to collect both qualitative and quantitative data for analysis.

When it comes to resilience, the capability of the organisation is determined by the actions of many individuals, rather than an individual, which will dictate whether an organisation displays a level of resilience. To provide a useful measurement of the Organisational Resilience, it is important that information is gathered across the organisation, and not just from one individual.[380] This is particularly important when it involves a strategically important business, such as the rail industry or other members of the CNI. There are certain social science strategies that would easily align themselves to this research project. Given the topic and the need to capture the interaction between individuals and teams, there were three strategies that came to the fore, based on the requirement for a qualitative approach to the data gathering phase. These were Survey,[381] Case Study[382] and Participatory Action Research[383] (PAR), which are discussed in Annex A.

3.7 RESEARCH METHODS

When measuring Organisational Resilience, the primary unit is the company itself, and therefore it is important that this is reflected in the collected information.[384] Within the military this was aimed at the various BGs that were assessed, which in turn gave the information on the Brigade and the Army. The civilian equivalent in rail industry companies to the BG would be the functional area, followed by the Business Unit, and then the company. By mapping out this correlation, it enabled a deeper comparison of the two organisations, which was important for the identification of how the lessons from the military could be utilised within the rail industry. Having decided on the research strategy, methods were identified for the collection of information and data. Collaborative working and successful decision-making are about relationships between individuals and groups, as well as technical knowledge and various practices and procedures. Organisational Resilience includes the individuals within the

[376]McManus, S.T., `Organisational Resilience in New Zealand', 2008.
[377]Fox J., `Analysing Leadership Styles of Incident Commanders', 2009.
[378]Stephenson, A., `Benchmarking the Resilience of Organisations', 2010.
[379]Newnham C., `Gold or Dust? Creating Resilient Organisations', 2012.
[380]Stephenson, A., `Benchmarking the Resilience of Organisations', 2010, p.115.
[381]Denscombe, M., 2003, pp.6, 8.
[382]Ibid., pp.31, 39.
[383]Kemmis S and McTaggart R., Participatory Action Research, 2007; Dick, B. A beginner's guide to action research, 2002 [On line]. Downloaded from http://www.scu.edu.au/schools/gcm/ar/arp/guide.html on 10 February 2014; Carr, W. and Kemmis, S. Becoming Critical Education, 1986, p.162; Bogdan, R. and Biklen, S. K. Qualitative Research For Education, Allyn and Bacon, Boston, Walter M., Social Research Methods: Chapter 21-Participatory Action Research, 1992, downloaded from www.oxforduniversitypress.com.au downloaded on 12 March 2014.
[384]Stephenson A., `Benchmarking the Resilience of Organisations', 2010, p.115.

organisation, as well as the processes and culture they operate within daily.[385] It has also expanded its focus to also encompass innovation, intellectual property, partnerships and company culture, along with the traditional risk management, security, business continuity and incident management domains.[386] To enable the collection of evidence on the importance of these personal interactions within the military, the researcher sought to capture technical and qualitative information on these areas across a wide sample of decision-making staff. Advice was obtained from academia, the University Guide on research as well as online documentation on the required size of the questionnaire sample to make it a reliable source of information.[387]

Table 9 reflects this information and the quantities of audience responses required to enable the questionnaires to deliver a result that has an acceptable degree of reliability for research purposes.[388] This highlights that for the military, the 694 responses from 3 brigades (approx. 6000 personnel) the questionnaires provided an accuracy to within +/- 5%, whereas with Network Rail, the responses provided an accuracy to within +/- 10%.

Pop Size	+/-5%	+/- 7%	+/- 10%	Pop Size	+/-5%	+/- 7%	+/- 10%	Pop Size	+/-5%	+/- 7%	+/- 10%
100	81	67	51	400	201	135	81	4000	364	194	98
125	96	78	56	425	207	138	82	5000	370	196	98
150	110	86	61	450	212	140	82	6000	375	197	98
175	122	94	64	500	222	145	83	7000	378	198	99
200	134	101	67	600	240	152	86	8000	381	199	99
225	144	107	70	700	255	158	88	9000	383	200	99
250	154	112	72	800	267	163	89	10000	385	200	99
275	163	117	74	900	277	166	90	15000	390	201	99
300	172	121	76	1000	286	169	91	20000	392	204	100
325	180	125	77	2000	333	185	95	25000	394	204	100
350	187	129	78	3000	353	191	97	50000	397	204	100
375	194	132	80								

Table 9: Research Questionnaire Criteria

3.8 RESEARCH DESIGN

During the development of the research approach, a limited amount of research on the application of PAR as a strategy within the research domain was identified. Utilising information captured by Bob Dick in 1993, the researcher found few sources of documentation to compare and contrast against the UK literature.[389] Material by Bob Dick was readily available via an Australian research website, while other international research papers where accessible via the internet and intranet. There was a growing amount of research on resilience and Organisational Resilience, though several reports still confused

[385]Chartered Institute of Professional Development, 2011, Developing Resilience: An evidence-based guide for practitioners, downloaded from www.cipd.co.uk on 22 Feb 2014.
[386]Braes & Brooks, 2010, p.16.
[387]Israel G. D., Determining Sample Size, Program Evaluation and Organisational Development, Institute of Food and Agricultural Sciences, University of Florida, 1992; Institute for Health and Care Research, Briefing document HB Nr: 1.1B-08 Questionnaires; selecting, translating and validating, 2010, downloaded from www.emgo.nl/kc/preparation/researchdesign/questionnaires on 12 February 2014.
[388]Israel G. D., University of Florida,1992, p.3.
[389]Denscombe M., 2003, Chapter 3; Kemmis S and McTaggart R., 2007; Dick, B. 2000.

resilience with business continuity.[390] Applied Action Research allowed the opportunity to blend various research methodologies which pursue action and research outcomes at the same time, which was ideal for the observation of the case study exercises, military training events and the live case study practices.[391]

Denscombe identified three benefits of a survey questionnaire; low cost; speed of data collection and richness of information.[392] He highlighted issues concerning the ability to check accuracy of the information, and risk of a low sample size. Two sets of questionnaires were created. The first set looked at the military which was regarded as being resilient, examining the level of training, education and leadership within the officer element. This concentrated on the non-technical elements of resilience management.

The second set of questionnaires, focussed on the rail industry, sought to identify if a culture of resilience existed, and therefore was designed to look at resilience functional training, education, leadership and management. Both sets were then compared to ensure they were able to deliver responses which would enable a comparison to be conducted, thus enabling the identification of potential issues across both organisations and whether solutions from the military may be transferable into the rail industry. For greater impact, the questionnaires were hosted on a social web platform, with links to it emailed to the relevant audiences. Support from relevant line managers and senior leaders within both organisations was also sought prior to the release of the questionnaire as this would provide support and add credibility to the data request.

Within the design phase of the questionnaire targeted at the military organisation, an extensive review of professional article reports on the areas of leadership and decision-making, management, business continuity, COIN, asymmetric warfare, politics and culture, international relations and education was conducted.[393] The question set was designed to elicit the importance of required skills for the individuals

[390] McManus S., Seville E., et al, `Resilience Management: A Framework for Assessing and Improving the Resilience of Organisations', 2007; Stephenson A., `Benchmarking the Resilience of Organisations', 2010; Boin A, Comfort L. K., and Demchak C. C., *Designing Resilience: Preparing for Extreme Events*, 2010; Chang-Richards A., Vargo J. and Seville E., `Organisational Resilience to Natural Disasters: New Zealand's Experience,' 2013.
[391] Denscombe, M., *The Good Research Guide,* 2003. p.74; Dick, B., `A Beginner's Guide to Action Research', 2000.
[392] Denscombe, M., *The Good Research Guide*, 2003.
[393] Bogacz R., Brown E., Moehlis J., Holmes P. and Cohen J. D., `The Physics of Optimal Decision Making: A Formal Analysis of Models of Performance in Two Alternative Forced Choice Tasks', *Psychological Review*, American Psychological Association, 2006, Vol 113, No,4 pp 700 -765; Gonzalez C. and Wimisberg J., `Situation Awareness in dynamic Decision Making: Effects of Practice and Working Memory', *Journal of Cognitive Engineering and Decision Making*, Human Factors and Ergonomics Society, Pittsburgh, Volume 1, No.1 2007, pp 56 – 74; Rake E. L. and Nja O., `Perceptions and Performances of Experienced Incident Commanders', *Journal of Risk Research*, Routledge, London, Volume 12, No 5, 2009, pp 665 – 685; Hitt M. A., Ireland R. D. and Hoskisson R. E., *Strategic Management: Competitiveness and Globalisation*, 9th Edition, South Western, Cengage Learning, Mason, Ohio, 2011; Rasche A., *The Paradoxical Foundation of Strategic Management*, Contributions to Management Science, Physica-Verlag, Heidelberg, 2008; Speight P., `Business Continuity' *Journal of Applied Security Research*, Routledge, 2011, volume 6 Issue 4 pp 529 – 554; McManus S. T., Organisational Resilience in New Zealand', 2008; Lindstrom J., A model to Explain a Business Contingency Process, Disaster Prevention and Management, 2012; Woodman P. and Hutchings P., *Disruption and Resilience: The 2010 Business Continuity Management Survey*, Chartered Management Institute, London, 2010; Woodman P. and Hutchings P., Managing Threats in a Dangerous World*: The 2011 Business Continuity Management Survey*, Chartered Management Institute, London, 2011; Australian Defence Force*, The War in Iraq: ADF Operations in the Middle East in 2003*, Australian Ministry of Defence, downloaded from www.defence.gov.au/publications on 21 Nov 2010; Hammes T. X., `War Evolves into the Fourth Generation', *Contemporary Security Policy*, Routledge, 2005, Vol 26 Issue 2, pp 189-221; Freedman L., `War evolves into the Fourth Generation: A Comment on Thomas X. Hammes', *Contemporary Security Policy*, Routledge, 2005, Vol 26 Issue 2, pp 254 – 263; Gautam P. K., `Ways of Warfare and Strategic Culture', *Defense and Security Analysis*, 2009, Vol 25, issue 4, pp 413 – 423; National Audit

within the resilience domain by various staffing groups. The completed question set used was reviewed with other members of the CAST(S) team and a trial version that was circulated within a test group, consisting of 60 army officers involved in the military tasks.

Of the 60 questionnaires distributed, seven were disregarded as they were completed incorrectly and the remaining 53 were electronically uploaded. The trial questionnaire was reviewed with the group and feedback received, which resulted in questionnaire amendments as listed below:

- Amend the statements to prevent them from potentially leading the individual;
- Change the questions to statements to enable a neutral tone to the research;
- Greater clarity on the scoring matrix being used for the questionnaire;
- Breakdown the statements into single item statements to enable greater ability to capture data; and
- Allow the ability to capture greater demographic data from the individual for later analysis.

On completion of the review, the question set was changed from twenty-one quantitative questions and five qualitative questions to twenty-three quantitative statements and five qualitative questions. The scoring mechanism was also changed to make it more user friendly for the respondents.

The focus of the questionnaire, shown at Annex D1, was a detailed examination, based on evidence, into how well individuals within the BG command teams felt they were prepared for their role, and how the military trained and educated its crisis management teams. The front end of the questionnaire sought to identify the key elements of developing resilience capability. The last three questions of the military questionnaire sought to obtain details about the roles, experience and rank of the individual, the level of training and education that they had received, and what they thought the military could do to improve the current level of training / education to increase the capability on operations. These questions also sought to identify if it was supporting the development of the individual around resilience activities, providing an option for individuals to exploit this knowledge once they left the military and sought to transfer their skills to civilian roles.

For Network Rail, the researcher developed two questionnaires; one was issued in 2014 to the operational security and resilience personnel, and the second in 2015 to the planning community; both are shown at Annex D2. The engagement and information gathering approach that was conducted was like that for the military questionnaire. For the Operations department questionnaire the audience selected for the industry department questionnaires were in areas that had an element of either security or operational focus and came from frontline disciplines, such as incident response, emergency

Office, Defence Committee inquiry into the Comprehensive Approach, National audit Office Report, 2009, downloaded from www.nao.org on 22 March 2012.

planning, leadership and training and development roles. By taking a holistic cross section, the intent was to identify whether a security and resilience awareness culture existed across the company or was only located in certain elements. For the planning questionnaire, the audience chosen from the planning department was represented from across the department.

3.9 RESEARCH IMPLEMENTATION

Figure 19 highlights the implementation model which was developed and utilised during this research project. The initial review of the problem, supported by the previous work of the researcher, enabled the scoping of the research project. A key element is understanding the participant groupings and their demographic characteristics. Table 10 details the participants demographics and what parts of the research they were involved in within Network Rail. On completion of the previous research review within the military sphere, the researcher analysed the current situation within the rail industry, seeking to identify what processes and procedures were in place to manage disruptive events on the rail network. This consisted of an analysis of existing policies, strategies and standards, observation of its training events, interviews with senior leadership personnel and tactical incident management trainers. Table 11 demonstrates the participant demographics from the military.

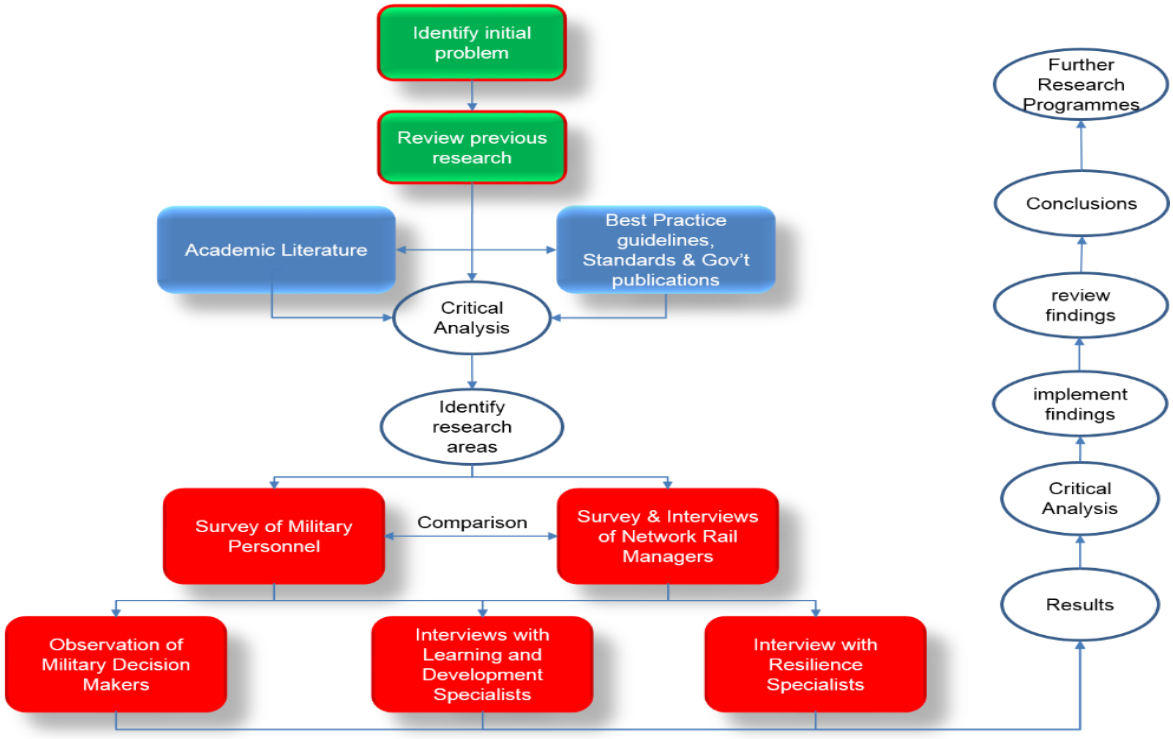


Figure 19: Research Framework Source: Author

The military education and leadership questionnaire and the rail industry resilience questionnaire were circulated concurrently. Within the military, information was also captured through semi-structured interviews and developing small table-top exercises which personnel were taken through to observe

their capabilities of managing incidents at a tactical and operational level. A brief analysis of each approach is discussed in the following section.

Serial (a)	Research Approach (b)	Numbers (People) (c)	Type of Evidence (d)	Reason (e)
1	Questionnaire	130	Primary	To obtain a greater understanding from NR individuals in decision-making roles on their level of education and preparation for resilience activities and respond / manage issues that affected the successful application of the various resilience activities.
2	Questionnaire	119	Primary	To obtain a greater understanding from NR individuals in decision-making roles on their level of education and preparation for their role within the Strategic Planning of the national timetable and collaborative working across the rail industry.

Table 10: Network Rail Participant Groupings.

3.10 OUTCOME MEASURES

The multi-layered approach to the gathering of research data enabled the gathering of primary and secondary evidence to inform the development of the ORM3 framework and the creation of products used to build greater resilience within the rail industry. Following on from the case studies and observations of training events to set the research conditions that were discussed previously, the outcome measures utilised in the remaining evidence gathering processes are discussed below.

Serial (a)	Research Approach (b)	Numbers (Participants) (c)	Demographic (d)
1	Observation of training events	64	Two separate headquarter groups. Various officer ranks from Lt Col – Lt. Male and female from various combat roles. Age varied from 25 – 45.
2	Case Study	N/A	Various Command staff responsible for the execution of the campaign. Key focus was on the senior leadership staff for the Oman and Northern Ireland case study. The Iraq case study focuses on senior leadership / political leadership interactions.
3	Live Case Study	170 (2 observations)	Two separate Headquarter groups. Various officer roles Lt Col – Lt roles. Male and female from various combat arms and the three services. Age range 25 – 46.
4	Questionnaire	656	Various officer roles (Brigadier – Lt), male, female from various combat roles and the three services. Age varied from 25 – 51. Completed by 9 BG Headquarters preparing for deployment on combat operations over a three-year period.
5	Interviews	20	Various officer roles (Lt Col – Lt). Male, female and from various combat roles, from the same BG headquarters. Age varied from 25 – 44.

Table 11: Military Participant Demographics

3.10.1 Personnel Interviews

The outcome measures for the interviews were transcripts of each interview from the BG personnel who participated. These were based on the responses being scored on the relevant information captured, with the relevant traits identified aligned within the key domains (Figure 20). A detailed analysis of the results against each other was then conducted, comparing the qualities to each other to identify a level of priority assigned to them from the BG personnel when it comes to the required traits of individuals within resilience and crisis management positions. This process enabled the mapping of the individual traits previously identified from the literature review and grouped into five key domains. By tracking each of the individual traits, as well as the domain it resided within, it enabled the visualisation of how the 20 individuals within an active headquarters, managing numerous issues of various intensity and complexity, viewed the importance of each personal trait. On completion of the data capture against the outcome measures, the domains were mapped with their individual traits, prior to the collective mapping of the traits for the research. The findings are discussed within the results section.

Figure 20: Personal Interview Domains Source: Author

3.10.2 Questionnaires

The questionnaires were hosted on Survey Monkey to enable direct completion by individuals, though within the military, individuals were also asked to complete written versions to enable the collection of data direct from source while on the training events. These were then uploaded immediately, which minimised the delay from training event to questionnaire completion. The military questionnaire framework consisted of multiple statements, aimed to help inform the development of a Comprehensive Approach to resilience within an organisation. The questionnaire was aligned against the domains identified below:

- Initial preparation
- Continued development
- Utilising capability
- Providing developmental support
- Building conceptual flexibility and adaptability
- Investing in a Comprehensive Approach
- Maintaining conceptual adaptability

The data from both the military and industry responses examined the level of initial training and development, how it is continued within the organisation and whether the focus is on training, or education. The other elements explored through the questionnaire were how the staff capability was

employed and how the organisation provided developmental support throughout an individual's career. The final elements of the quantitative section of the questionnaire focussed on how the building of conceptual flexibility and adaptability, key requirements to enable an individual and a team to respond to and manage unfolding crises and serious incidents, and how well the Comprehensive Approach was explained, practiced and utilised in a multi-agency environment, while the second element explored the leadership capability present within the organisation. The quantitative questions were then captured into the five-point Likert scale, while the qualitative questions were analysed for themes, which were then also placed into a chart for visual representation.

For the Network Rail questionnaires, like the military questionnaire, there was a similar level of engagement. Both questionnaires were designed around several statements, focussed on understanding the resilience and leadership capabilities within the two departments, aligned against the domains identified below, to help inform the development of a Collaborative Approach to resilience. The domains used were:

- Initial preparation
- Continued development
- Utilising capability
- Providing developmental support
- Building conceptual flexibility and adaptability
- Investing in a Collaborative Approach
- Maintaining conceptual adaptability

For the engagement around the consideration of security, continuity and resilience issues within the company, the questionnaire was given to 500 individuals with Band 1 to 4 roles, or equivalent seniority within the frontline operations team. 130 individuals completed the questionnaire, though only 117 identified their relevant managerial position within the company. Within the Strategic Planning department, out of the 119 respondents, the majority were positioned within the middle management layer of the company. Band 5 represented the planning teams, with the Band 4 being the team leaders or planning technical specialists. The Band 3 level represented the team managers or project managers within the department. Above them sat the senior leadership team, consisting of the Band 2 personnel. Delivering the strategic guidance of the department, aligned with the direction set by the executive leadership, was the responsibility of the Band 1 community.

Using similar domains for data collection and assessment across the military and industry samples enabled credible comparison of the results. The first industry questionnaire was focussed on the Operations Department, analysing the level of capability and knowledge that existed within that department. The second questionnaire, targeted at the Strategic Planning department, focussed more on how a department within Network Rail managed the capability of its staff to build a culture of leadership and adaptability. Having identified the importance of decision-making, adaptive leadership

and staff conceptual agility within the military case studies and military staff interviews, along with a detailed understanding of the level of resilience capability within the Operations department, the second industry questionnaire was run across the Strategic Planning department, with the outcome being a greater understanding and analysis of the leadership behaviours, and any barriers to performance, that were present within the department and experienced by the individuals involved in the response. The results were used to inform the development of lessons from the military that the rail industry can use to help develop a resilience leadership framework.

3.10.3 Observation of Live Case Study

Utilising McManus' resilience model, a matrix was developed to score and assess the resilience capability of the observed BGs as they conducted the Live Case Study. The event consisted of two independent operations. The practitioners planned and executed the first event, received a debrief from the observation team and then reset to conduct the planning and execution of the second event. The concept behind this was to identify the flexibility, conceptual adaptability and ability to reflect and learn from mistakes.

The use of a comparison model enabled the identification of the organisation's level of resilience against McManus' framework, while also enabling a greater breakdown in detail through utilisation of radar graph mapping of each of the components. The BG was scored on its first event, with the comparison model completed and a resilience value attributed to the organisation. On completion of the second event the model was completed, with the scores compared to identify if there were any changes in the values. This was conducted for both McManus' model and the more detailed radar graph to identify changes at component level. The process was conducted on the headquarters' performance being observed and scored by the observation team, with comments captured within the performance report. The score was then ratified by peer review and discussion on completion of the exercise, then allocated a numerical score which was entered into the comparison model.

3.11 CODIFYING

On completion of the initial information-gathering phase, the data streams were analysed to pull together key elements of the relevant areas of research. A conscious decision was taken not to set the codifying parameters prior to the research. It was intended to review the data captured and identify initial strands of similar information. The questionnaires, utilising the Likert scale, enabled a quantitative measurement to be taken, which offers clear-cut data sources. The qualitative element of the questionnaires, interviews, case studies and "live case study" events offered a less defined response, as many actions were interdependent with the actions of other members within the group / team. Within the military there was a higher level of engagement within the managerial staff, than seen within the industry audiences, though this was due to the environment and the fact they were on pre-deployment preparation for combat operations.

These processes, along with the selected resilience interviews conducted following on from the questionnaires, also produced a valuable amount of data, though the answers were less defined as the selection of the factors were based on the selective opinions of individuals on the factors of a resilient organisation. Through a process of codifying, the results identified the following factors as key to building organisational resilience:

- Adaptive Leadership
- Understanding of risks, issues and trends (intelligence gathering and exploitation)
- Better training for role
- Better investment in education
- Investment in workforce development
- Communication and information sharing

3.12 SUMMARY

This chapter has detailed the approach taken to develop an effective research strategy to gather evidence to inform the creation of the ORM3 framework. The approach was in line with the direction laid out, aligned to research guidelines on effective information gathering. Primary information was gathered through questionnaires, interviews and observation processes.

The research approach allowed for the fact that, as shown in Table 9, and advised by the Institute for Care and Research, the minimum questionnaire response rate obtained should be between 50 – 100 returns to enable the sample size to be effective.[394] Table 9 demonstrated the levels of response required to deliver a level of research accuracy to the findings. This also factored into the distribution strategy that on average a questionnaire will only receive a 20% success return rate,[395] thus there was the requirement to predict this situation[396] and identify a sample audience large enough to account for this factor. It was a key element of the research approach that the methodology was primarily developed to provide an effective, transferable, reliable and verifiable way to gather information from the collected information and case studies, allowing comparison across the various departmental audiences that were surveyed and observed.

The military questionnaire was presented to the various personnel groups after the observations of prior exercises to shape the questionnaires based the research outcomes. The questionnaires provided one of five research data gathering methods into how the military developed organisational resilience. The other research elements were case studies, live case study observations, interviews and previous exercise reviews. This provided a detailed methodology for gathering information on the research topic. The use of a live case study allowed for the gathering of key information on how military teams operate under pressure, identifying potential lessons through good and poor practices as the teams sought to

[394]Institute for Health and Care Research, 2010, p.2.
[395]Bolton University, Using a questionnaire introduction brief, Bolton University Library, downloaded from www.bolton.ac.uk/library/librarypublications/Cribsheets/questionnaires.pdf on 24 February 2014.
[396]Denscombe, M., *The Good Research Guide*, 2005, p.23.

manage complex situations. The case study review of the rail industry and military also informed the current situation to assist in the development of the resilience framework.

Key to the information gathering within the rail industry was the level of audience engagement across the various industry departments. Within the rail planning department, it was mainly from the junior operational staff, whereas with the security questionnaire it was more focussed at the middle management layers, though there was double the level of return engagement at the senior (Band 1 and 2) levels. There was a higher level of engagement within the senior management layers, though this may have been due to the position of the researcher and the cultural approach to identifying lessons that were being introduced within the organisation.

The effective implementation of the multi-streamed research methodology enabled the collection of a large amount of primary and secondary information, which is explored in the following chapters. This information informed the creation of the various components of the ORM3 framework, based upon real business and operational issues being experienced across the business spectrum. As discussed within the literature review, though there has been an increase in the level of interest within the topic of Organisational Resilience, the level of understanding remains low, supporting the requirement for this level of research to be conducted. Chapter 4 articulates the business case for effective Organisational Resilience management, and the impact of not investing in it. Following on from this, Chapter 5 introduces the concept of resilience within the military and rail industry using case studies, analysing the practices and processes that they utilise to maintain operational capability, supported by the examination of contemporary strategic thought.

CHAPTER 4: BUILDING THE BUSINESS CASE FOR ORGANISATIONAL RESILIENCE MATURITY

4.1 INTRODUCTION

The previous chapters have set out the context regarding Organisational Resilience and has identified that the discipline is still evolving, with a limited academic and practitioner body of evidence available to date. Effective research within the UK on the implications of embedding an Organisational Resilience culture is conducted by a few research centres. Against this backdrop, there is less understanding of the business case for developing resilience and the creation of a management framework to assess, benchmark and plan resilience activities within the UK industry base. Organisational Resilience is still regarded as the mythical golden egg for business teams, with few academic establishments including it within their educational criteria. The area is mainly left to business leaders to attempt to develop their own approach, utilising guidance documents, such as BS:65000, to assist them. The literature review has demonstrated that there are several issues that are impacting on the resilience capability of organisations at a strategic level; limited situational awareness, cultural issues or ineffective leadership. The review also noted several key domains that support the implementation of resilience activities; these were assurance, agility and flexibility, effective planning, governance and organisational structure, and the investment into the social capital of the organisation.

Building on those findings, this element of the research thesis will explore the business case for the development and implementation of an Organisational Resilience management framework within a business, and the key approaches required. It will evaluate what benefits an Organisational Resilience management framework would bring to a business, and how the executive leadership team can benefit directly from this innovation. This will pull together examples from the previous chapters on key issues / deficiencies identified in the literature analysis, assisting with the development of the assessment framework for the live case study and the composition of an Organisational Resilience management framework.

In the industry and organisational research domain, the topic of Organisational Resilience, and how to construct it within an organisation, has been experiencing renewed interest since the onset of the recent global events which have negatively impacted on national and international organisations. The 2008 economic downturn, the increase in extreme weather, man-made crises which impact supply chains have resulted in performance impact.[397] For the senior leadership of an organisation to consider investing in the development of an Organisational Resilience culture, there must be the development and acceptance of an effective business case for investment. The investment will only be obtained if the assumptions within the business case are based on clear evidence which demonstrates the value added by the implementation of said Organisational Resilience activities and cultural change. Therefore, the development of an Organisational Resilience business case must be as well developed,

[397]Ceschi A., Fraccaroli F., Costantini A. and Sartori R., `Turning Bad into Good: How Resilience Resources Protect Organisations From Demanding Work Environments`, *Journal of Workplace Behavioural Health*, Routledge, Taylor and Francis Group,Volume 32, Issue 4, pp267-289. Available at www.tandfonline.com/loi/wjwb20

if not more so, than the case for the procurement of a new piece of operational equipment, the development of a new capability, or the hiring of a new member of the team. It must be clearly thought out, resourced, supported through clear evidence and demonstrate an effective benefit so that it is able to compete with other business cases that are fighting for funding and resources from the executive leadership team. The concept of embedding Organisational Resilience must be seen not as another silo within the organisation, but rather viewed as the outcome of good management processes, operational excellence and effective leadership, supported by proactive business intelligence networks to build and maintain situational awareness across the organisation. The ORM3 framework must therefore be developed as a holistic mechanism, rather than focussed on a single area of the business managed by specialised individuals. It must also obtain and sustain executive leadership support if it is to be successfully implemented. The organisation must be comfortable that the level of Organisational Resilience within its various suppliers is also effective; if not, no matter how robust the organisation's own level of resilience is, it will be impacted if its supply chain is operating at a far lower resilience capability.

Operating within the markets in the 21st century is becoming increasingly complex, with globalisation having changed the structure of the marketplace and the speed at which transactions and disruption can impact corporate activity. The saturation of once closed markets using technology and online retail platforms are driving organisations to take increased risks or face the possibility of going out of business. Many of the threats that now exist, such as organised crime, information security risks and terrorism, are becoming increasingly complex and difficult to combat. Individuals and organisations undertaking these activities are becoming networked and more asymmetric in their approach, making it harder to confine the impacts of these activities. As business leaders constantly seek to maintain a positive profit margin, new forms of accountability are being introduced. The need to have effective corporative governance frameworks in place, proactive corporate social responsibility polices and activities to maintain a positive image, and the use of internal assurance and auditing to assist in identifying areas of concern before they become areas of vulnerability all place pressure on the executive leadership team. Not only is society demanding greater choice, at a faster pace, it is also seeking to hold organisations to account and directs them to operate in an ethical manner, in line with the Corporate Social Responsibility policies.

4.2 UNDERSTANDING THE BENEFIT

To address new demands, organisations have transitioned from traditional functional hierarchical structures to more networked or matrixed arrangements in a bid to build more responsiveness and flexibility to cope with the dynamically changing business space within which they operate. This enables organisations to group themselves into tight knit clusters of diverse skill sets and experience, targeted at addressing a unique business issue within a given timeframe. This team is empowered by the organisation, with the decision-making and accountability devolved to the local level in a bid to maintain momentum. Within the military, this is the concept known as "Mission Command"; in business it is adaptive leadership. For this approach to be effective, there is the reliance on the leadership team to

be comfortable with devolving the decision-making and managing the organisation through trusted networks, rather than the historical rigidly hierarchical command and control channels.

Although the UK has developed a standard to define Organisational Resilience at a strategic level, there is little consensus at the operational level as to how organisations can turn the strategic direction into business activities to deliver success.[398] In 2011, Hubert noted that while the topic of resilience was nothing new, the ability for organisations to understand how to develop mechanisms to achieve resilience is, and as the definition is lacking quality, the approach is not clearly defined and there is a limited level of academic research within the UK on how organisational resilience can benefit businesses.[399] In 2014, in an attempt to address this situation, the British standards Institute developed BS:65000 Organisational Resilience, with the intent to provide a clear framework for organisations to follow. On review, the standard was positioned as a "guidance" document, rather than a clear framework, which failed to provide businesses with clear definitions of how to implement the concepts at an operational level.

Organisational Resilience is focussed on the ability of a business to manage disruption, change and uncertainty through effective resourcing, leadership and situational awareness. This approach requires the ability for the leadership team to concentrate on the long-term development of the organisation, rather than the quick financial wins which funds the shareholder returns or leadership bonus payments each year. To build the ORM3 framework, there is the requirement for investment at both the financial and resourcing levels to design, develop, implement and sustain the initiative. Building such a framework would require a cultural change from how many of the current organisations operate within the UK market space. The ORM3 framework will not stop all disruptive events from occurring. If implemented properly a well-defined framework may significantly reduce the number of disruptive events escalating through enabling the organisation to respond more effectively through the development of situational awareness.

Within the UK standard, research identified that organisational resilience would bring several benefits to those organisations that implemented and maintained a framework. [400] These benefits included:

- An increased level of effective leadership through the development of better situation awareness, which informs decision-making and an understanding of the current market trends. The increase in leadership can also assist in the development of organisational vision and strategy;

[398]BSI, `BS65000:2014: Organisational Resilience`, 2014.
[399]Hubert R., Organisational Resilience, Discussion Paper, REX Management Systems GmbH & Co. KG, 2011. Downloaded from www.bcm2013.com/papers, accessed 10 September 2017.
[400]BSI, `BS65000:2014: Organisational Resilience`, 2014.

- A higher level of competitiveness obtained through the ability to identify potential risks / issues or opportunities earlier, respond to them to mitigate potential impact and be able to exploit the vulnerabilities of other competitors if they fail to react;

- An increased level of efficiency and effectiveness at all levels through the alignment of operational activities with relevant strategic resilience outcomes. The operational activities may consist of certain tasks which focus on for example, risk identification and management, incident response or business continuity, while the strategic outcomes are the development of longer-term growth, strategic decision-making and effective leadership. For the benefit to be achieved successfully, these activities and outcomes need to be mutually supportive, as this is fundamental to the development of an effective ORM3 framework.

- An improved organisational reputation within its supply chain and the community within which it operates. This is obtained through an effective corporate social responsibility mechanism, as well as better understanding of the interdependencies of communication, brand, organisational behaviours and culture, and how it is observed externally. Good communication and ethical working increase the trust communities and other organisations have towards the business as it provides a level of assurance to the various activities the organisation is conducting.

Further research into how organisations developed various frameworks to assist with the operational and strategic requirements identified several other potential areas of benefit that Organisational Resilience can deliver. Hubert proposed the introduction of a two-dimensional matrix of components which, when integrated, would provide a strong level of Organisational Resilience, providing strength and governance to identify and manage the outcome of a disruptive event. The cornerstone of his model was his organisational resilience definition;

> "Organisational resilience is the ability of an organisation to provide and maintain an acceptable level of service in the face of faults and challenges to normal operations by preventing, avoiding and resisting damage and recovering quickly."[401]

[401]Hubert R., Organisational Resilience, BCM discussion paper 2011. Downloaded from www.bcm2013.com/papers, accessed 10 September 2017.

This was more focussed on maintaining the current state, rather than using the knowledge to adapt and potentially seize the advantage over competitors. His model is shown in Figure 21. Both these approaches demonstrate that the thinking around Organisational Resilience was focused on the physical aspects of risk, governance, security and BCM. Little thought had been given to the wider functions of the organisation, though Hubert does highlight the structure required for an organisation to perform, underpinned by the framework of his four key components.

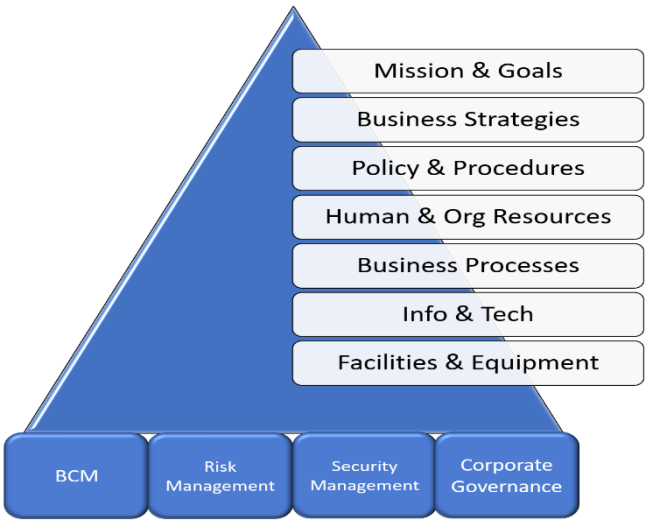


Figure 21: Organisational Resilience Model Source: Hubert

The work conducted by Cranfield University identified that in 2015 only one third of CEOs believed that their organisations were capable of long-term survival.[402] The Cranfield project team reviewed 600 academic papers, along with interviews and insights from organisations across the globe, to try and understand the current situation with organisational resilience and to develop a better understanding of the current resilience situation within industry. One of the major issues within the current thinking behind Organisational Resilience is how should it be applied. The common perception is that Organisational Resilience enables an organisation to `bounce-back`, therefore a resilience framework provides a defensive mechanism to protect an organisation and enable it to return to its previous state prior to the event happening (Figure 22). A second driver of Organisational Resilience is the concept that it is a progressive framework, which is aimed at developing internal structures and capabilities to provide early warning and avoid the major impact of disruptive events. This provides an organisation the ability to `bounce forward', to obtain a market advantage by maintaining capability while others within its market

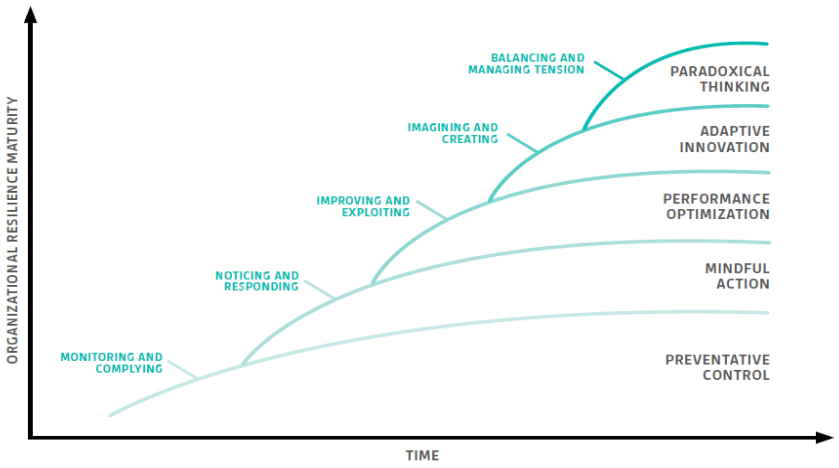


Figure 22: Development of Organisational Resilience Thinking Source: Cranfield University

[402]Denyer, *D. Organizational Resilience: A summary of academic evidence, business insights and new thinking*. BSI and Cranfield School of Management, Cranfield, 2017.

area struggle to respond to the disruptive event and the following consequences. The Cranfield Report highlighted that the knowledge of Organisational Resilience has developed over time, moving from a preventative control method of application, through risk management, business continuity and incident preparation to the need to develop paradoxical thinking within the senior leadership groups to consider how events could impact on an organisation, unfold into a `wicked problem' and how resources and capabilities within the organisation can be deployed to counter the effects and maintain organisational stability.

The lack of understanding as to how the various elements of an organisation are required to work together to provide Organisational Resilience was still prevalent in 2014, with Patrick Alacantra, writing on behalf of the Business Continuity Institute, continuing to propose that Organisational Resilience was focussed on Risk Management, BCM and Governance. This siloed thinking reflected the current issues within the wider industry base. Little thought had been given to how softer skills aspects, or organisational culture, could impact on the resilience of a business. This research was focussed on performance optimisation. Few reviews mentioned the importance of human resource management, or stakeholder engagement, or the mobilisation of social capital. These are all key elements in developing and maintaining a successful organisation, especially during disruptive events. The ability to innovate and adapt is critical in large-scale disruptive events, as each is a unique construct of events, yet, as highlighted, few research articles considered the soft skills impact in detail.

4.3 ORGANISATIONAL RESILIENCE BENEFITS – ORGANISATION BEHAVIOURAL ATTRIBUTES

In 2015 Bansal described Organisational Resilience as `an incremental capacity of an organisation to anticipate and adjust to the environment.'[403] He highlights that social resilience is built through continuously anticipating and adjusting to potential threats, rather than responding to a single crisis. It involves the application of learning, adaptation and the general capability of being able to persist through disturbances. While organisations that seek to apply Organisational Resilience through building situational awareness and identifying and correcting poor practices, thus reducing risk and loss of efficiency, they also seek to benefit from the output, which is the development of a continuous improvement awareness, development of flexible resources and the ability to quickly process and respond to environmental signals. Together these elements enable an organisation to act as a complex, dynamic system, through their management of environmental analysis data and flexible resource frameworks, which in turn builds their sustainability and adaptability.[404] Key to maintaining the situational awareness of the environment is regular engagement with stakeholders and the supply chain elements. A good relationship will allow the gathering of data that can warn of early shocks, thus enabling the preparation and resource management to be in place to absorb, deflect or avoid the impact. The interconnection of situational awareness, stakeholder engagement, flexible resources and adaptive

[403]Ortiz-de-Mandojana, N. and Bansal, P., The Long-Term Benefits of Organisational Resilience Through Sustainable Business Practices, *Strategic Management Journal*, Issue 37, 2016, pp 1615 – 1631.
[404]Ibid., p.1617.

leadership, supported by an inclusive and innovative culture, enables an organisation to develop a base to build its resilience. Without these factors, an organisation will struggle to adapt to disruptive events.

Building upon the information captured by the BCI and Bansal, in 2016 the Chartered Management Institute explored the importance of leadership within the development of Organisational Resilience. It identified that crises cannot always be avoided and therefore an organisational leadership team must be ready to manage the situation.[405] Out of the 1100 managers that they surveyed, 94% indicated they had been involved with a company crisis, with only 55% thinking that they had handled it well. The surveyed group identified that one of the key factors that caused the crisis to continue was the lack of support from senior leadership (78%), with 52% indicating that senior leadership support would have helped them manage the situation better. Over 70% said the crisis was exacerbated by mistakes made by senior managers. The culture of the organisation is also a major factor to how an organisation will respond to a disruptive event. 68% of the group surveyed by the CMI surveyed group identified that culture failure was a factor within the crisis that they experienced.

It is also important as part of building Organisational Resilience to understand the impact of a disruptive event on the workforce, especially those staff members that are closest to the crisis. Dealing with a disruptive event, and the ambiguity and subsequent consequences that it can cause, can be emotionally draining and affect the physical and mental resilience and capability of the individual. The group surveyed by the CMI highlighted that they struggled to manage the personal impact, with only 36% being able to effectively manage the emotional impact it had on themselves. The research by the CMI highlights the importance of the interactions between the managers on the ground and the senior leadership. The CMI also highlights the importance of making Organisational Resilience focussed on people, rather than systems, technology or processes. The engagement of individuals across departments and functional silos can help build understanding, develop lessons and embed knowledge to help increase a wider level of awareness within an organisation.

The interactions between individuals and departments are key to developing and maintaining a resilience culture. Investment within the right behaviours, practices and staff development provides the ability for the workforce to flex and absorb the impact of a disruptive event, helping an organisation to react and recover. A study by Chakravorty in 2015 into how the US Air Force developed Organisational Resilience focussed on how the USAF Warner Robins Air Logistic Complex managed with several disruptions to maintain capability.[406] The study showed how the organisation focussed on building better personnel networks, investment into leadership capability development, explored the current situation through systems thinking and analysis, and reviewed required outputs.

[405]Skoberne, K., Plas, L., Ghazelayagh, S and Woodman, P., `Bouncing Back: Leadership Lessons in Resilience', Chartered Management Institute, London, 2016, p.7.
[406]Chakravorty, S., `Organisational Resilience', *Industrial Engineer*, Institute of Industrial and Systems Engineers, Vol 47, issue 1, Jan 2015, pp 46-50. Downloaded from www.iise.org/industrialengineer/details.aspx?id=38360 on 10 Jan 2018.

The study identified that to survive disruptive events, organisations need to invest in a collaborative working approach, rather than working in separate functions, to maintain resilience and capability. The second key observation was that to build the resilience capability, an organisation needs to invest, maintain and display positive behaviours within the workforce to manage disruptions. Through displaying positive feedback loops within behaviours, staff delivered a significant performance increase, while negative feedback loops provided little or no performance improvement. This impact is shown in the work conducted by the CMI, which highlighted that 63% of the manager group surveyed admitted to their personal performance being impacted by the disruptive event they had experienced, with almost 80% indicating it had caused an impact on their personal lives.[407] By developing a greater situational awareness, through systems thinking and mapping, cross-functional engagement and developing a lessons learnt framework, organisations can start to understand what potential events may occur, and what actions can be put in place to mitigate against the occurrence the issue of them occurring, and managing the effect once they do occur. This level of anticipation of potential threats and organisational vulnerabilities is crucial pre and post disruptive events. By having an understanding where the organisation is weak, the executive leadership team can take steps to minimise the impact. Anticipation also promotes horizon scanning, assisting in providing the required level of intelligence on the potential changes that may occur in the near and distant future that may impact on the organisation.

The work by Bansal, the CMI, Hubert and Cranfield University identified that there was something more than just good incident management and business continuity frameworks required for building organisational resilience. For businesses to be competitive, they need to be able to innovate, remain relevant to the market need and continuously improve and expand their products into emerging or expanding markets. To develop this capability requires a clearly defined vision, supported by the correct leadership framework. Underpinning this is the need to develop the correct organisational culture that embraces learning and adaptation as part of the DNA of the business. A good organisational framework for developing resilience will seek to invest heavily into these three areas as this will provide the foundations on which to build the operational activities to deliver the correct level of resilience across the organisation. Within the organisation, the executive leadership team provide the thought leadership to develop and implement this central core of strategic direction to the organisation. Such a move will require a highly effective leadership team, as embedding a resilience culture, which embraces learning, innovation and adaptation, will in itself rely on transformational leadership to change the cultural footprint of the organisation from relying on several corporate security activities, such as incident management, business continuity and risk management, to developing a strategic outcome focussed on Organisational Resilience.

Work in this area by the Australian Government in 2016 sought to develop this concept into key activities for application for businesses across the Australian Commonwealth. The work conducted identified that

[407]Skoberne, K. et al., Bouncing Back, Chartered Management Institute, 2016, p.11.

organisations that embedded an Organisational Resilience culture would receive the following strategic benefits when operating within an uncertain environment.[408]

- Have the operational flexibility to seize and maximise new opportunities;
- Have stronger BAU performance, higher profit margins and better return on investment;
- During disruptions, maintain operational continuity for longer and return to BAU more quickly than competitors; and
- Maintain and build reputation by minimising disruption to clients, communities and organisations reliant on their services.

In 2011, research conducted on developing the resilience capability of the Australian CNI identified that the embedding of an Organisational Resilience culture within the relevant CNI functions would deliver extensive benefits in the areas of leadership, managing change and organisational performance.[409] The work also identified that although the ability to have corporate security frameworks in place, such as incident response, risk management and business continuity, there also existed three strategic behavioural attributes to delivering effective Organisational Resilience. These were focused on leadership and culture, networks and being ready for disruptive change.[410] By developing a positive approach to these three behavioural strands, it was proposed that organisations can manage the impact of a disruptive event far more effectively. The research into several organisations and how they responded to crises identified that the ingrained culture of an organisation can have a profound impact on how the leadership responds to a disruptive event and how long the crisis may last. It studied two similar sized organisations that dealt with a burst water pipe, and how they approached it (Table 12):

Factor	Type of Organisation	
	Accountancy Practice	Law Practice
Size	36 staff 2 Storey building	36 staff 2 Storey building
Issue	Flooding due to over-flowing toilet cistern	Flooding due to broken hose pipe to dishwasher
Recovery time	6 days	6 weeks
Approach taken	Collaborative approach Staff consulted and informed Early planning Effective risk/issue management Supportive culture	Uncoordinated approach Poor communication Rushed approach Blame culture
Impact	Increased trust Staff empowerment Reduction in complexity and costs	Loss of reputation Staff frustration Increased costs

Table 12: Case Study on Resilience Behavioural Attributes. Source: Australian Government

[408]Australian Government, `Organisational Resilience: Good Business Guide', Brouggy P., (ed), Attorney General's Department, Commonwealth of Australia, 2016, p.2.
[409]Australian Government, `Organisational Resilience: Position Paper for Critical Infrastructure., Attorney General's Department, Commonwealth of Australia, 2011.
[410]Ibid, p.14-15.

The case studies clearly identified the need for organisations to focus on building an effective behavioural approach, as well as having the correct practices and procedures in place. It was evident that several organisations relied on IT systems to manage the crisis response, rather than the leadership team. Organisations require the presence of effective leadership, supported with the correct culture, to navigate a rapidly changing risk environment which is characterised by the presence of disruptive technologies, globalisation, increasing technological complexity within the market space, while also contending with natural disasters, extreme weather events and the accelerating rate of change within the political, societal and environmental spheres. Organisations need to set a clear vision to set the direction around which to build the various resilience capabilities. This vision, supported through the culture and leadership teams, will position the value proposition for the organisation. It will promote the need for developing an organisational approach to learning, empowerment of the staff and the need to build a corporate body of knowledge to enhance the capability of the organisation to respond to, recover and adapt from disruptive events.

4.4 BUILDING ORGANISATIONAL RESILIENCE THROUGH OPERATIONAL ACTIVITIES

To enable organisations to succeed within this environment, there is the need to support the strategic resilience elements that have been identified with operational activities to embed the strategic concepts. Work done by the Carnegie Mellon Group in the development of the CERT-RIMM framework focussed on developing operational resilience, focussing on the disciplines of security, business continuity and aspects of IT operations.[411] This approach, by the US Department of Defense, demonstrates a limited way of thinking when it comes to resilience; the lack of behavioural attributes and socially focussed activities to support the implementation of a resilience culture impact on the effectiveness of the organisation. There is a need to build a framework at the operational level to support the development of the strategic concepts. The following section analyses current thinking within the resilience sphere and discusses the benefits that such a framework can deliver within an organisation.

Literature on making a business case for Organisational Resilience is very limited within both the academic and practitioner spheres, though there have been several reports on the importance of developing an effective business case for sustainability and for Change Management for businesses.[412] These reports noted the importance of being able to communicate the level of performance across the organisation to help maintain the social performance and social engagement, which in turn supports the development and sustainment of competitive advantage. These reports assisted in creating an understanding pertaining to the relationship amongst the drivers, activities, measures and the critical paths within the organisations to develop better sustainability and management of change. In 2016 the Australian Government, based on the previous research into CNI resilience, developed the resilience

[411]Allen J. H., and Davis N., Measuring Operational Resilience Using the CERT Resilience Management Model, Cert Program, Software Engineering Institute, Carnegie Mellon University, US Department of Defense, 2010.
[412]Schaltegger, S., Ludeke-Freund, F. and Hansen, E.G., Business Cases for Sustainability: The Role of Business Model Innovation for Corporate Sustainability, *International Journal for Innovation and Sustainable Development*, Vol 6 No.2, 2012. Downloaded from www.researchgate.net/publication/296013169; Abouzaglo S. and Kirschen T., `Why a Business Case for Change Management', IBM Global Business Services White Paper, International Business Machines Corporation, New York, 2015.

framework for business. This framework aimed to identify where organisations may acquire operational benefit when they implemented Organisational Resilience framework across the business.

In the context for building the business case for Organisational Resilience, the ability to link the relationship between outcomes, activities and proposed resilience investment initiatives is critical to enabling the executive leadership team to decide what to support. The work by the Australian Government for building greater resilience within organisations incorporated into the framework's physical and behavioural attributes (Figure 23). Through the clear measurement of the various operational elements, the organisation would develop an enhanced reputation, an improved level of risk management and situational awareness. This would in turn inform the leadership team's decision-making processes, providing an increased likelihood of surviving large-scale disruptive events.

Research into the effectiveness of organisational governance and its impact on resilience by Lampel, Bhalla and Jha in 2014 identified that there was a strong correlation between the level of investment and engagement of the employees and the stability of the organisation's performance.[413] The research also noted that employee owned organisations had a longer investment payback horizon, and that strategic decision-making the leadership team were quicker to engage and seek input from the employees, creating a collaborative and empowered organisation. This also enabled a tighter coupling between operational feedback and decision-making, creating a stronger organisational learning loop. Their research identified that having a defined and embedded resilience framework, supported through employee engagement and strong governance, is beneficial when an organisation is facing a crisis. They noted that resilience should not be confused with survival; resilience is about maintaining the long-term social capital and operational integrity.

Figure 23: Organisational Resilience Framework Source Australian Government

An example of how the development of a resilience culture that integrates the social aspect, employee engagement and a strong ethical approach to building that capability can be witnessed in the recovery

[413]Lampel J., Bhalla A. and Jha P.P., `Does Governance Confer Organisational Resilience? Evidence from UK Employee Owned Businesses, *European Management Journal*, Elsevier ltd, Vol. 32, 2014, pp. 66 – 72.

of the law firm Sandler O'Neill & Partners, captured by Freeman in 2003.[414] The law practice lost 39% of its workforce, its complete physical infrastructure and 66% of its management committee in the 2001 World Trade Center Buildings attacks. Within three months it was back to trading and profitable, and within twelve months was performing better than it had done prior to the attack, despite the downturn experienced by Wall Street. The study shows that while leadership capability and slack resources enabled the organisation to survive, the ability to mobilise its social capital, through a strong moral purpose to survive, provided a driving force that was bought into by staff, customers and stakeholders. Freeman, Hirschhorn and Maltz expanded the framework of Organisational Resilience to also include the organisation's vision and culture. Though the company was decimated, the drive to succeed, allied with a new moral purpose, enabled it to mobilise the social capital of ex-employees, current staff and customers. By developing a strong moral driver, which set the core vision and culture of the organisation, managed by the adaptive leadership style of Jimmy Dunne, the remaining board member, the firm was able to utilise its social capital to pull it out of the crisis and maintain its resilience. By focussing on the employees, supporting all those that had lost family members, plus assuring the firm's clients that the firm would continue to function, Dunne was able to mobilise the latent capability of the firm's social capital and turn it into a dynamic driving force in re-building the organisation. This enabled the organisation to utilise the various avenues of support to rebuild its operations and capability, while larger organisations struggled in the aftermath of the attack.[415]

The ability of the remaining leadership team to respond and recover quickly through the leadership style, the vision and cultural direction enabled the organisation to grow rapidly. While other organisations were still trying to recover, the company had adapted to the new situation and demonstrated a recovery capability not seen in others, much larger than itself. Sandler O'Neill was upheld as an example of Wall Street recovery capability, with other organisations seeking to learn the methods. Sandler O'Neill was able to restructure and re-design its operating model, thus increasing its speed of adaptability and growth. Sandler O'Neill had demonstrated a strong level of Organisational Resilience through the delivery of a holistic response to a catastrophic Black Swan event.

[414]Freeman, S., Hirschhorn, L. and Maltz M., `Organizational Resilience and Moral Purpose: Sandler O'Neill & Partners, L.P. in the Aftermath of September 11, 2001', in D Nagao (ed), *Academy of Management Best Papers*, Madison, WI, Omnipress, 2003.
[415]Ibid.

Within the rail industry a recent example of poor governance and questionable organisational behaviours is the collapse of Carillion.[416] Due to poor governance practices and strategic decision-making by the directors, the organisation's profits were reduced by £845m, with the shares dropping in value by 70% in late 2017 (Figure 24). The overall impact noted in September 2017 was £1.2bn, which completely negated the previous eight years profits.[417] The government report also highlights poor behaviours from the external auditing and assurance organisations, which failed to prevent the directors authorising Carillion from agreeing to loans that outstripped its available assets by 283%.[418] The application of poor governance does not only impact the organisation, it can also create strategic issues for the supply chain that supplies the organisation. As a result of the impact of Carillion's collapse, several CNI organisations which had contracts with Carillion were forced to implement risk management and continuity plans.

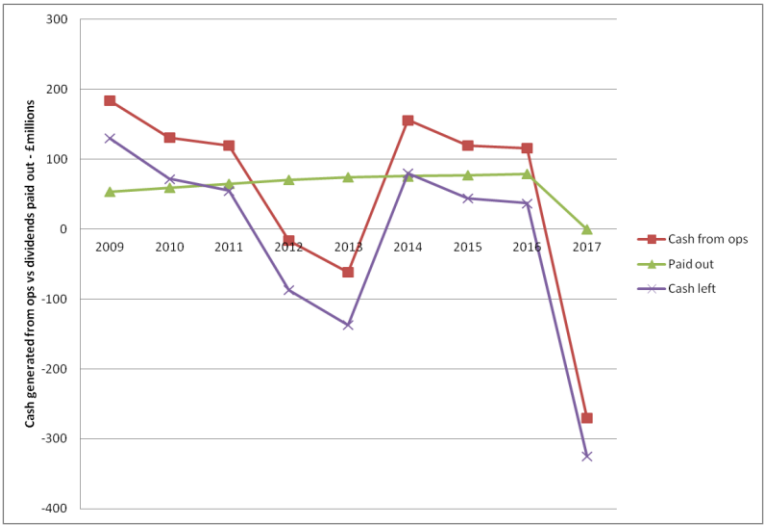


Figure 24: Carillion Financial Figures Source: UK Government

BS 13500 sets out the governance model (Figure 25). It is a symbiotic relationship between the leadership team, the culture and purpose of the organisation, and the accountability framework that is used to audit the business. By aligning these elements, it creates the proper organisational behaviours, with then builds trust and credibility with the stakeholder groups. The governance structure is aligned to the culture and vision of the organisation, with the objectives being set by the governing body to enable the organisation to achieve the business vision. Another element that is key to developing a strong governance framework is the ability to develop collaborative working practices across the organisation and industry. By conducting effective joint working practices businesses can address potential risks and issues,

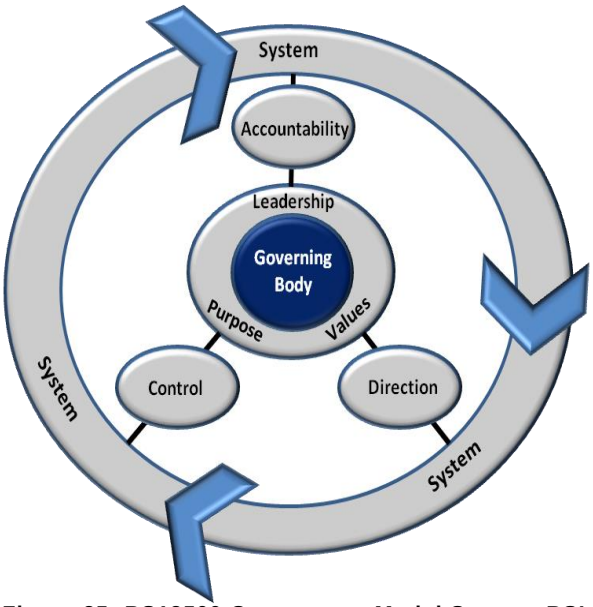


Figure 25: BS13500 Governance Model Source: BSI

[416]Mor F., Conway L., Thurley D. and Booth L., `The Collapse of Carillion', *House of Commons Briefing Paper Series*, Number 8206, House of Commons Library, Whitehall, London, 2018.
[417]Ibid, p.5.
[418]Ibid, p.16.

minimise duplication of effort, share knowledge and research and minimise disruptive events through collective intelligence gathering and sharing. Allied with the effective vision and strong leadership, this approach can support the culture of organisational learning.

Work conducted in 2006 by the DEMOS institute noted that many of the organisations that they spoke to remarked that there was a high level of frustration within senior managers when it came to having their recommendations for resilience building activities being rejected. [419] Old school corporate security activities were still seen as being core to the executive leadership team's strategic planning, rather than the development and sustainment of strong governance and a culture of learning. The report identified that there was a need for many organisations to accept that the security department was now being faced with many other corporate functions, such as information assurance, business continuity and reputation management. The research by DEMOS, the BSI, Lampet et al and Freeman et al identified that the areas of corporate security, governance and operating procedures have converged as the landscape has become more complex. Corporate governance is recognised as providing the framework within which security, risk and information assurance activities operate. The DEMOS report discussed the wider aspects of corporate security, and the need for organisations to start developing the capability to manage the increased complexity.[420]

Detailed investigations and research by the DEMOS institute identified multiple aspects of Organisational Resilience that successful organisations possessed (Figure 26). The research identified several approaches based on security, assurance, networks and relationships, leadership, staff focussed approaches and effective levels of governance. The report proposed that, based on the extensive research conducted, resilience was more than an effective corporate security framework; resilience relied on the senior leadership understanding the various concepts and requirements to ensure that it was effectively managed. It noted that there was a growing acceptance that individuals being placed into resilience building activities require professional development and experience within the field. If organisations wish to develop an in-house capability, there is also the need to have in place a clear career structure to enable the sustainment of Organisational Resilience knowledge.

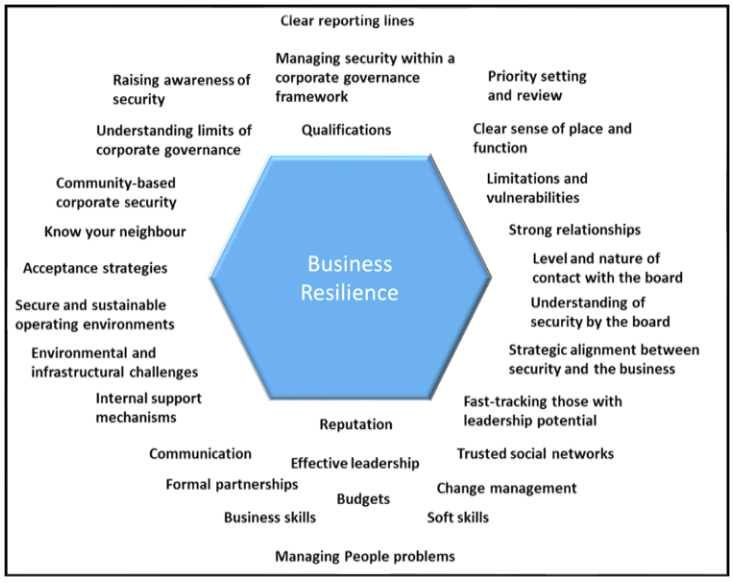


Figure 26: DEMOS Factors to Build Organisational Resilience
Source: DEMOS

[419] Briggs R. and Edwards C., *The Business of Resilience, Corporate Security of the 21st Century*, 2006. Available at www.demos.co.uk, accessed on 20 September 2015.
[420] Ibid. P.32 – 35.

McManus and Stephenson both reflect on the need to consider the organisation as a complex adaptive system, consisting of multiple systems operating in support of each other to deliver the working organisation. With the identification of the multiple factors by DEMOS in 2006, and the findings from the various reports in the space shuttle disasters, or the research by T D O'Rourke into Hurricane Katrina, it is clear that the development of Organisational Resilience requires the organisation to be seen as a system of systems, interacting with and being dependent on each other.[421] Systems thinking posits that the sum of the systems is greater than the agents themselves. Within an organisation the resilience capability to manage the impact of disruptive events relies on more than just an effective response and recovery procedure from the corporate security departments. This now creates a complex but mutually supporting system of systems, as each element can impact or support another element to manage a disruptive event impact. If the organisation, under the concept of organisational learning, or continuous improvement, seeks to analyse and understand the causes of disruptive events, and then adjusts its structure, behaviours, culture or frameworks based on the findings, then it has begun to adapt to its environment. In essence, the organisation has now become a complex adaptive system, able to conduct horizon scanning and adapt before a disruptive event occurs in order to minimise the impact.

This work by McManus and Stephenson identified the impact that the structure of an organisation may have on the ability for it to develop and sustain effective Organisational Resilience. A dynamic environment can create complex situations with multiple factors that can impact the organisation. These factors create complex issues and emergent strategic changes. As the organisation seeks to manage the emergent strategic changes, it is also managing the impact they are having on the operational activities of the company, with the various systems responding to the pressures being exerted on them. The incorrect organisational structure will prevent effective management of the various departments, resulting in siloed responses and actions, which can impact on response time, communications, resource management and financial or operational impact.

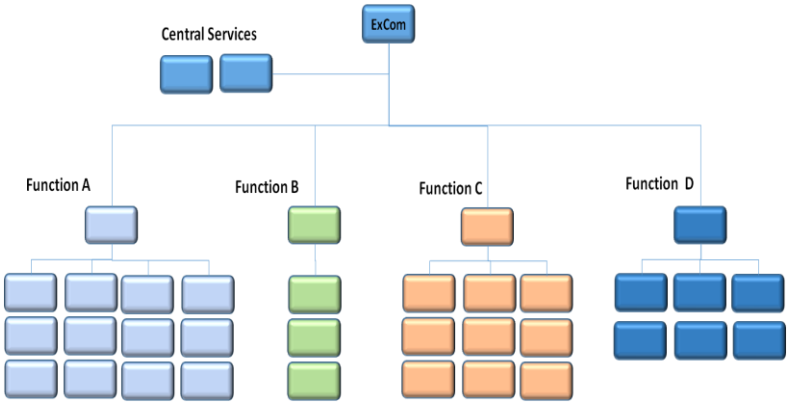


Figure 27: Traditional M Shaped Organisational Structure. Source Yardley

The typical historical structure for UK industry is the top down M (Multi-divisional or "spider") shaped organisation (Command and Control), (Figure 27), with a central leadership team directing how the organisation behaves, the key decisions it makes and how it responds to external stimuli from the markets. Research by Brafman and Beckstrom in 2006 identified that organisations that stuck to this sort of framework struggled with the complexity of the

[421]National Aeronautics and Space Administration (NASA), *Columbia Accident Investigation Board*. n.p.: NASA, 2003, available at https://www.nasa.gov/columbia/home/CAIB_Vol1.html; O'Rourke, T. D., `Critical infrastructure, Interdependencies, and Resilience', *The Bridge: Linking Engineering and Society*, 2007, pp 22-29.

modern markets.[422] With such a rigid framework in place, the organisation could not react quickly enough to disruptive events, resulting in the organisation experiencing operational and financial impact to its performance. Their book sites several examples of large-scale organisations being heavily impacted by smaller, networked challengers that can operate at a far quicker pace, with smaller overheads. For organisations to respond effectively they need to operate like complex adaptive systems, with various departments interlinked and networked with a certain level of empowered decision-making to enable faster response.

By taking this approach, the organisation will move to a more decentralised framework, which, according to Yardley, as well as Brafman and Beckstrom, will create an N-shaped organisation (Networked or "starfish") (Figure 28).[423] As an N shaped organisation, there are primary relationships (red lines) and secondary relationships (blue dashed lines), which provides greater agility and empowerment. As the business enters a period of significant change, there is need for a more authentic leadership style to come to the fore and deliver the desired organisational outcomes critical to the success of the strategic business plan. The development of an organisational culture, supported by the executive leadership team to empower various functions / departments to make decisions, based on the vision set out for the organisation, provides a greater capability for responding to and recovering from disruptive events.

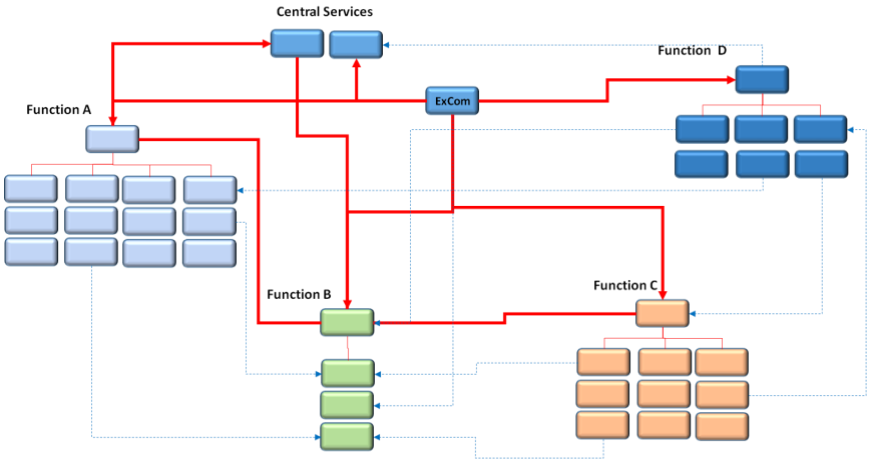


Figure 28: Networked (N) Shaped Organisational Structure. Source Yardley

A de-centralised approach also provides the organisation with the ability to become a more proactive influence within the marketspace. By becoming more flexible, the organisation can avoid stagnation and promote innovation and creativity. Brafman and Beckstrom discuss how getting the balance between the M and N frameworks, creating a hybrid model, can result in increased performance, security and innovation, as well as developing a learning culture, through the analysis of how Toyota turned around a failing General Motors industrial plant.[424]

[422]Brafman O. and Beckstrom R.A., *The Starfish and the Spider: The Unstoppable Power of Leaderless Organisations*, Penguin Books Ltd, London, 2006.
[423]Yardley, I. et al, *From Battlefield to Boardroom*, 2012: Brafman O. and Beckstrom R.A., *The Starfish and the Spider*, 2006.
[424]Brafman O. and Beckstrom R.A., *The Starfish and the Spider,* 2006, pp.179 -184.

Figure 28, which reflects a more distributed organisation, can be witnessed in organisations with devolved leadership functions, complex insurgent / terrorist groups and the UK military. The military, when deployed on operations, are structured along the lines of a system of systems approach, providing the ability to rapidly adapt to the situation with which the group is faced, as elements are loosely coupled to various parts of the organisation based on the requirement at the time. This is discussed in greater detail in Chapter 5.

This flexibility to adjust the shape and resources available at a given time provides an organisation with a far greater level of resilience when encountering dynamic change and complex situations. The research into how the Command Teams within the military managed to build and sustain their resilience while experiencing complex disruptive events over a sustained period identified multiple operational benefits. These included:

- Clear understanding of the situation and an informed assessment based on available intelligence;
- Effective and decisive decision-making, based on facts and analysis;
- Effective intelligence gathering mechanisms;
- Co-ordination of effort across various teams against a defined end state;
- Effective leadership and direction to the teams;
- Regular and clear communication articulated in multi-media form;
- Effective monitoring and tracking of the situation and impacting factors;
- Freedom to delegate tasks with an empowered workforce operating through Mission Command;
- Effective prioritisation of activity based on threat to the organisation;
- Effective assurance mechanisms (Red teaming, wargaming, back briefings);
- Effective planning cycles and clear handover to operations team;
- Stress management of the team; and
- Effective Lessons learnt framework (Hot debriefs, After Action Reviews, Application of lessons).

This reflects the Command Skills characteristics noted by Crichton, Lauche and Flin in their research into how to build effective Incident Command Skills for organisations to help minimise the impact of complex disruptive events and build Organisational Resilience.[425] In their work they identified ten key skills that enhanced an effective response and increased resilience. These 10 skills were:

- Situation Assessment
- Decision-making
- Team coordination
- Leadership
- Monitoring
- Delegating
- Prioritising
- Planning

[425]Crichton MT, Lauche K. and Flin R., `Incident Command Skills in the Management of an Oil Industry Drilling Incident', *Journal of Contingencies and Crisis Management*, Blackwell Publishing, Oxford, Volume 13 Number 3, 2005

- Communicating
- Stress management

Research by David Denyer in 2017 also noted that the development of Organisational Resilience within a business would bring the following outcomes: [426]

- Performance Optimisation;
- Preventative Control;
- Adaptive Innovation; and
- Mindful Action.

Together these outcomes would enable an organisation to build the "ability to anticipate, prepare for, and respond and adapt to incremental change and sudden disruptions."[427]

The ability to build and sustain Organisational Resilience requires engagement with internal and external stakeholders and organisations through robust and connected communication channels. This capability is, as demonstrated by the military exercises, reliant on the development and retention of key personnel and the knowledge and experience that they bring. Crichton et al also noted that the Incident Response Management skills shown by the military and Emergency Services are developed through training, continuous development, organisational culture and an understanding of potential issues / threats that they may face based on evidential learning. The observations of the live case study exercises highlighted that the greater the ability of the organisation, the better its level of resilience building activities and approach to learning. This in turn impacted on how it managed the response to complex disruptive events that were made part of the exercise scenarios (Figure 29). To build and obtain the benefits of an effective Organisational Resilience framework, there is the requirement to create a blend of the following:

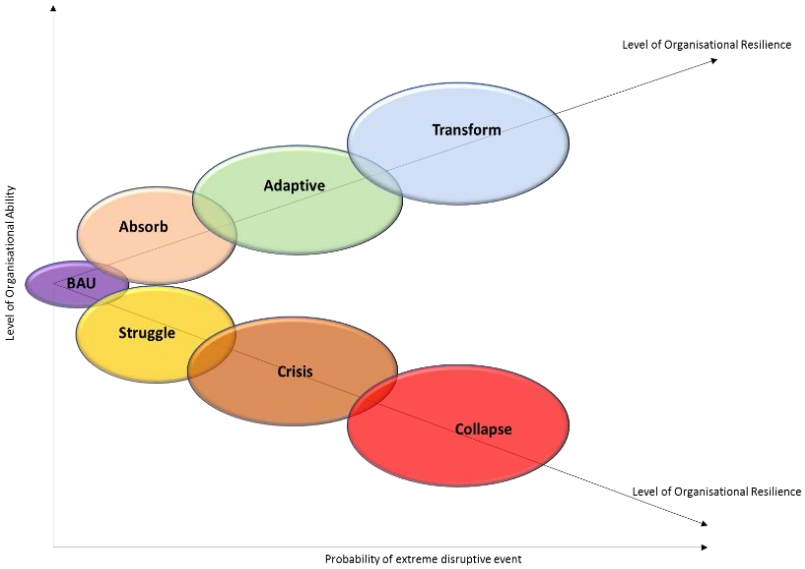


Figure 29: Organisational Ability and Impact on Organisational Resilience. Source: Author

- Effective leadership;

[426]Denyer, D. Organizational Resilience: A Summary of Academic Evidence, Business Insights and New Thinking. British Standards Institute and Cranfield School of Management, Cranfield University, Cranfield, 2017.
[427]Denyer, D. Organizational Resilience, 2017, p.18.

- Empowered workforce;
- Learning culture;
- Understanding of the situation and mitigations;
- Correct practices and processes in place;
- Effective intelligence gathering and analysis;
- Correct structural frameworks;
- Effective and sustained communications with all stakeholders; and
- Investment and continuous development of the workforce.

4.5 SUMMARY

The development of Organisational Resilience provides organisations with the ability to survive and adapt to disruptive events, enabling them to maintain capability and return to delivering normal service to their customer base once they have recovered. The current thought processes around the development of Organisational Resilience has delivered a shift in business thinking and the requirements of how organisations review their operating practices and procedures, though there are few tools or guides on how to build an effective mesh, connecting them in a holistic framework. Processes, such as business continuity, governance, risk management and incident response and recovery, do not in themselves provide an organisation with the ability to maintain its resilience within a competitive market. Each factor by itself delivers a tactical capability. Together they provide a level of strategic capability, but unless they are aligned with the corporate vision, supported by the senior leadership and are recognised as part of the organisational culture and therefore accepted by the workforce, they may not receive proper investment.

The investment into an Organisational Resilience management framework requires strategic leadership buy-in. While tactical activities, such as incident response or risk management, can deliver immediate results, the result and benefits of a resilience culture are not immediately apparent. It may take several years for the holistic approach developed through the implementation of an Organisational Resilience management framework to deliver results, as few companies or organisations record the number of disruptive events that are avoided. Only by tracking the performance of an organisation over time, mapped against a similar historic reference period, can an organisation demonstrate any benefits from the frameworks.

While the long-term benefits may take time to track and demonstrate, an organisation with a high-level of resilience can deliver its core capabilities while managing the initial impact of a disruptive event, creating the time to form the required elements to manage the response and recovery activities. The observations of the military methods of developing resilience capability identified key components; a system of systems approach; effective intelligence gathering and analysis; effective communications; an adaptive leadership framework; and a supportive culture. The final part of the resilience jigsaw is the ongoing learning and continuous improvement that is required to obtain the strategic benefit of implementing a holistic resilience framework.

This element of the research has sought to build and clearly define the business case for the need for Organisational Resilience, and the approach to effectively manage it. There is a need to invest in a long-term sustainable framework to build organisational capability, starting from the culture, through the leadership framework and vision to the tactical components of the business. Building operational excellence and co-ordinating activities with a systems approach will build resilience. When supported with evidence-based cultural change activities, driven by a double loop learning approach, an organisation can move from just surviving a disruptive event to transforming itself through learning from the event, becoming more effective, competitive and robust to dynamic market changes and disruptive events.

CHAPTER 5: CASE STUDY ORGANISATIONS

5.1 INTRODUCTION

This chapter is structured to provide an overview of the case study information that was captured during the research phase of the thesis. Each organisation is briefly described, with key issues that impact on the resilience of the organisation presented. It will initially set out the context of the organisation and the wider framework within which it functions, before exploring the various issues that the organisation has experienced, and the impact that has had on its level of resilience. A detailed discussion of the various elements is conducted within the next chapter to help build a greater knowledge base of the issues and impacts. The knowledge obtained from each case study is then used in the following chapters to inform the development of the ORM3 framework, which develops a means to analyse and assess the resilience capability across an organisation.

The discussion of Organisational Resilience in each of the case study organisations that follows is structured to assist in the development of the ORM3 framework, using previous research in the field of Organisational Resilience as a guide to assist in identifying key areas for consideration. It looks at the three areas of strategic leadership, management of disruptive events and strategic planning capability, providing a clear understanding of the problem statement, key issues and consequences. This chapter analyses the railway industry and activities of the UK military over the period 2002 – 2018, setting the context of the resilience challenge. This provides the ability to conduct a clear comparison between industry and the military, with the case studies focussed on critical elements of the organisation responsible for delivering the core activities that enable the organisation to achieve its performance requirements.

In the modern world certain skills are required when individuals or teams are faced with disruptive events, with different requirements placed on the leadership and management of the situation and the ways they are delivered. To increase the probability of success, specific requirements, tailored to the event, need to be applied in a timely manner. The management of large-scale disruptive events or routine performance issues require a blend of leadership and management competencies to enable an individual to lead a response team and give effective direction. Within the UK the most relevant example of an organisation which has experienced a significant change programme, with a diffuse and large workforce, while simultaneously incorporating a cultural change and a staff reduction programme, is the UK military.

Regarding the rail industry, this chapter provides a historical overview of the recent British railway, before analysing the strategic context within which it operates. It reviews key components of the rail community, the operational constraints, issues and key challenges that face the industry. This chapter also examines similar aspects of the UK military, analysing recent campaigns that they have been involved in, the challenges, issues and complexities it has faced caused by a dynamically changing operational environment, and the impact that this has had to the resilience capability. This analysis of

both organisations provides the benchmarking of the problem situation which this thesis answers through the study of an organisation that possesses a good level of resilience. The issues around building and maintaining a culture of Organisational Resilience are also discussed, utilising evidence collected from research that is case study based, providing the information to answer the research question.

5.2 SETTING THE STRATEGIC CONTEXT

Both the military and the rail industry have an economic influence on the UK economy, either through defence equipment procurement or the movement of goods. Both organisations suffer the tensions of centralization vs decentralization. Both are also subject to government regulation and budget scrutiny. Recent events in the UK over the last 15 years have resulted in both the military and rail industry having to implement resilience processes to manage the impact of major disruptive events. The UK political and economic landscape has been subject to destabilising events over the last two decades, through two protracted military campaigns, the actions and impact of the 2008 financial crisis, the ongoing political turmoil of Brexit, resulting in the political management of the nation becoming severely disrupted, or the current Covid-19 pandemic, which has resulted in a potential paradigm cultural shift to how businesses operate. This level of change and disruption is likely to continue over the next 30 years.[428] Ongoing natural and human disruptive events, such as extreme weather events, increased terrorist attacks or more sophisticated cyber assaults on the CNI, have forced organisations to rapidly implement changes to their structures and production lines. The recent impact of the Covid-19 pandemic, Brexit, the political fallout of the 2017 General Election and the movement of European based organisations have led to several strategic shocks to the UK industry base.

In 2007 the UK experienced exceptional flooding events, with the country experiencing the wettest summer since records began, with over 55,000 properties flooded, 13 fatalities and the military deployed to assist local councils.[429] Transport networks were badly disrupted, and the 2007 UK floods were ranked as the most expensive in the world, with the insurance industry paying out in excess of £3 billion, causing the country's largest peacetime emergency since World War II.[430] The larger issue caused by the winter weather during 2007 was the identification by central government of resilience limitations within the transport sector, key infrastructure providers and local communities, with many businesses unable to trade for months.[431] There was the identification of a poor level of senior leadership, with the Pitt Review highlighting that within organisations:

[428]Ministry of Defence, *Strategic Trends Programme, fifth edition – Global Strategic Trends out to 2045*, Defence Concepts and Doctrine Centre, Shrivenham, Swindon, 2014, p.xiii.
[429]Pitt M., *The Pitt Review: Learning Lessons from the 2007 Floods*, The Cabinet Office, London. Available from www.nationalarchives.gov.uk, p. ix.
[430]Ibid, p. vii.
[431]Ibid, pp. vii - x.

> "Change will only happen with strong and more effective leadership across the board…" with a need to "be much clearer about who does what…" and "be willing to work together and share information."[432]

Within the transport sector in 2008 major significant tranches of disruption occurred across the railway network as work conducted by industry members failed to keep to the planned schedules, forcing an investigation by the ORR that identified that the major disruption in February 2008 was caused by over-running engineering works and poor planning. It was compounded by poor information management and notification by the industry to passengers seeking to use the rail network.[433] This observation was replicated within a study conducted by the National Audit Office in 2008 on the management of information to passengers during disruption on the railway. It identified that:

> *"*More could be done, however, particularly in dealing with incidents which require the cooperation of third parties. There is scope to build more effective relationships and to improve contingency planning. There are also shortcomings in the way that passengers are handled when incidents occur and there is scope for the rail industry to keep them better informed when they are delayed.*"*[434]

In 2009-10 and 2012-2013 the country suffered extensive periods of exceptional cold weather, and in the winter of 2013 – 14 the country was struck by heavy winter storms and a severe tidal surge on the East Coast. History indicates that the impact of severe weather is bad for the UK economy. In the last quarter of 2010 the UK's GDP fell by 0.6%, most of this being attributed to the effects of the weather.[435] This equated to £280 million a day being lost from the UK economy.[436] In February 2014 the railway link to the Southwest was severely damaged, costing the economy an estimated £20m daily; repairs were estimated to cost £35m over an eight-week period.[437] During the Christmas period of 2014 the UK experienced several critical infrastructure resilience failures, including;

- The railway network ground to a halt around London, leading to an inquiry to be raised by the Department of Transport into the Rail Network performance;[438]

- 10 main hospital trusts across the UK reported the need to initiate major incident procedures as Accident and Emergency response targets were missed;[439]

[432]Ibid, p. x.
[433]Passenger Focus, `ORR investigation into Network Rail's New Year engineering overruns report', 2008.
[434]National Audit Office, `Reducing Passenger Rail Delays by Better Management of Incidents', Comptroller and Auditor General, House of Commons, The Stationary Office, London, 2008, p.7
[435]HoCTSC, Tenth Report of Session 2013 – 2014, `Ready and Waiting? Transport preparations for Winter Weather', The Stationary Office, 03 January 2014, p.6.
[436]HoCTSC: `Keeping the UK Moving: The Impact on Transport of the Winter Weather in December 2010', The Stationary Office, London, 2011, p.3.
[437]BBC News website 4 Apr 2014, www.bbc.co.uk/news/uk-england-devon-26874503
[438]http://www.bbc.co.uk/news/uk-england-london-30607689 accessed 04 Jan 2015.
[439]http://www.bbc.co.uk/news/uk-england-30694056 accessed 06 Jan 2015.

- The UK oil industry was under extreme pressure as the price of crude oil continued to fall;[440]

- Heathrow, Gatwick and smaller airports were struck with a traffic control centre failure resulting in 10000+ passengers being affected, resulting in an independent inquiry being commissioned to investigate the cause;[441] and

- The British press were raising serious concerns about the capability of the UK energy sector to meet demand thus impacting on the ability to maintain an effective recovery programme.[442]

Within a period of twenty-eight days many of the strategic organisations critical to the smooth functioning of the UK had witnessed a major disruptive event which affected capability, performance and brand reputation. It seemed that the lessons identified in 2007 had not been fully applied by 2014, evidenced by the strategic resilience failure of the CNI organisations.

In a similar timeframe, the UK military found itself experiencing multiple complex campaigns facing insurgencies in Iraq and Afghanistan, while undergoing several strategic reviews, re-organisations of capabilities and realignment of its organisational structures, hampered by poor strategic leadership, lack of political vision and complex resource issues.[443] In contrast to the Cold War experience of inter-state conflict framed by the interests and postulations of two super-powers, more recent intra-state conflict has become increasingly complex.[444] Dr Paul Cornish notes that

> "What is clear, and what complicates the debate still further, is that much of the response to these threats and hazards will have to be developed and delivered within a broad framework of domestic policy, rather than confined narrowly to considerations of defence in the Cold War style or pursued at arm's length under the rubric of foreign policy."[445]

The 20th Century saw a revolution in military affairs (RMA) focussed on the speed of information available and how it is managed across multiple platforms, with the UK military utilising a `system of systems' approach. The employment of emerging technologies, stand-off precision munitions and fully integrated Command, Control, Communication, Computers and Information (C4I) systems enabled strike capability from distance.[446] The perceived benefits of the new ways of warfare failed to arrive, with the Iraq and Afghanistan campaigns demonstrating that the Western approach to large-scale

[440] http://www.bbc.co.uk/news/business-30693905 accessed 06 Jan 2015
[441] http://www.bbc.co.uk/news/uk-30474738 accessed on 06 Jan 2015.
[442] http://www.bbc.co.uk/news/business-29038804 accessed 07 Jan 2015.
[443] Gracey A., `Five Years On, Lessons From Iraq.` *British Army Review Special Report*: *Lessons from Combat, Volume 3*, 2014; King A., Military Command in the Last Decade, *British Army Review*, 2011, pp20 – 31; King A., *Command: The Twenty-first Century General*, 2019; Ledwidge, *Losing Small Wars*, 2012; Mansoor, P., `The British Army and Lessons of the Iraq War', *British Army Review*, 2009, pp11-15; Mackay A. and Tatham, S., `Behavioural Conflict - From General to Strategic Corporal: Complexity, Adaptation and Influence', *The Shrivenham Papers*, 2009; Mackay A and Tatham S, *Behavioual Conflict: Why Understanding People and Their Motivations Wil Prove Decisive in Future Conflict*, 2011; North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, 2009.
[444] MoD, JDN 3/11 (2011) page 1-1.
[445] Cornish, P., (ed), *Britain and Security*, The Smith Institute, 2007, p.9. Available from www.smith-institute.org.uk accessed 02 Mar 2015.
[446] Gautam, P. K., `Ways of Warfare and Strategic Culture', 2009.

warfare was not effective when involved in a low intensity conflict, operating within urbanised environments. This resulted in the re-consideration of the hybrid warfare threat and the complex environment that it created. With the 24-hour media coverage and tactical events resulting in strategic impacts, the UK required a more population-centric approach to building resilience within failed or failing states that allowed it to focus the capabilities of cross-governmental influence, rather than creating an over-reliance on military solutions to predominately political problems. The analysis of the Iraq and Afghanistan campaigns enable a study of how the failure of setting a political vison, poor development of strategy, ineffective military strategic leadership and a lack of institutional level learning can impact of the ability to develop and sustain Organisational Resilience.

The study of military operations provides an opportunity to observe lessons, which can be used to inform industry on how to manage complex problems. Increasingly, the Contemporary Operating Environment (COE) has seen the blurring of the battlefield and the financial markets becoming increasingly common, with financial establishments, corporations and large-scale public events becoming legitimate targets for hostile forces as they embark on 4GW conflict activities. This has resulted in military personnel requiring education in identifying and correctly collecting financial documents, credit cards and signs of financial transactions during searches within hostile areas. In September 2014 the MoD, along with HM Treasury, conducted an international study event in Counter Threat Finance and the means to address the situation within the contemporary operations arena. The COE has created an amorphous threat where the military and business establishments `are more likely to face a simultaneous amalgam of regular and irregular opponents than a clearly defined and identifiable threat.'[447] The House of Commons Defence Committee identified this complex environment within its 2015 review of UK Defence capability;

> "For the first time in twenty years, an advanced military state has challenged the borders of European nations, and the security challenges in the Middle East, Africa, and South Asia have increased dramatically in scale and complexity. Russia has annexed Crimea, and Russian-backed separatists have taken much of Eastern Ukraine. DAESH (or ISIL) have seized the second largest city in Iraq, and now control areas of a territory larger than the UK."[448]

By conducting a study of the Military, particularly the Army, it is proposed that lessons can be identified that can be applied to industry to increase its resilience to strategic and localised disruptive events.

5.3 UNDERSTANDING NETWORK RAIL AND THE RAILWAY COMMUNITY

The rail industry has undergone several strategic reviews to identify the most cost-effective methods by which to operate the rail network, with several more being commissioned due to the impact of the May

[447]Ministry of Defence, *Joint Doctrine Note (JDN)* 2/07 *Countering Irregular Activity within a Comprehensive Approach*, Development, Concepts and Doctrine Centre, UK Defence Academy, Shrivenham, 2007. P.1-1.
[448]House of Commons Defence Committee, *Rethinking Defence to Meet New Threats*, Tenth Report of Session 2014-15, House of Commons, The Stationary Office Ltd, 2015, p.3.

2018 timetable crisis.[449] The events detailed above have had a strategic impact on the financial landscape within which the industry operates and it will require strategic thinking and planning for an organisation to survive in such an environment. Based on a seven-year study, it was identified that implementing effective change was a key component of success, forming one of the nine pillars of strategic thinking.[450] The level of change implemented in response to the shifting landscape needs to be managed as excessive change may exceed employees' tolerances, provoking a negative reaction to the desired change.[451]

Under the Railways Act 1993, the rail industry was split into two elements; the railway infrastructure, and the TOCS / FOCs. Initially the railway infrastructure was given to RailTrack, a separate privately-owned company, to manage. The task was to maintain the track, signalling and freeholds of stations and other properties and private land over seven geographical zones. To achieve this, it employed a workforce of approximately 11000 personnel.[452] The initial cost of the Railtrack sale by the Government was a source of investigation by the National Audit Office in 1998, which identified that had the government followed the process of the other natural monopolies it had privatised and that by selling them in tranches, the Government may have increased the sale price by at least £600m, though there was the option to have increased this to £1.5bn had the Government retained 40% of the shares.[453] This situation demonstrated that even at the beginning of the Government's direct intervention into the privatisation of the industry showed very poor commercial understanding of the actual value of the industry. Over the period of 1997 - 2001, Railtrack demonstrated a severe lack of capability to maintain the rail infrastructure in accordance with its licence.

For the GB rail industry, the demand for services and rail capacity is a wicked problem that has increased in complexity over the last decade. As the industry experiences a high level of customer engagement, with passenger services increasing by 95% over the last 25 years and over two-fifths of journeys being conducted in London, the number of disruptive events also increased.[454] The success of the industry has driven the complex issues that it now faces, with the increase of passengers resulting in the need for more rolling stock and network capacity. This in turn drives the need for greater investment into the industry to keep pace with the increasing demand. In contrast, Network Rail

[449]Hendy, P., `Network Rail- Replanning the Investment Programme', Report to the Secretary of State for Transport, Network Rail, London, 2015; Bowe, C., `Planning of Network Rail's Enhancement Programme 2014 - 2019 Review', Report to Secretary of State for Transport, Department for Transport, London, 2015; Shaw, N, `The Future shape and Financing of Network Rail', Report to Secretary of State for Transport, Department for Transport, London, 2016; Hansford, P., *The Hansford Review - Unlocking rail investment – building confidence, reducing costs*, Nichols Group, 2017. Available at www.thehansfordreview.co.uk.
[450]Wootton, S. and Horne, T., *The Nine Steps to Strategic Thinking*, Kogan Page, London, 2010.
[451]Johnson, K. J., "The dimensions and effects of excessive change", *Journal of Organisational Change Management*, Vol 29, Issue 3, 2016, pp 445 – 459.
[452]Butcher, L.` Railways Briefing: Railtrack 1994 - 2002', Standard Note SN/BT/1224, *House of Commons Library*, Business and Transport Section, 2010. Available at www.researchbriefings.files.parliament.uk.
[453]Ibid., p.4.
[454]Office of Rail Regulation, *Rail Passenger Experience Report*, Department for Transport, Open Government Licence, London, 2014, p.20.

increased the Public Sector Net Debt by 2% of GDP since 01 September 2014, when it was re-integrated as a Public Body, bringing with it a debt of £30 billion.[455]

Under the Railways Act 2005 and post the demise of Railtrack, the Secretary of State for Transport took over control of the railway from the Strategic Rail Authority (SRA), accepting the responsibility for determining the rail budget, setting the strategy and the leasing of the passenger rail franchises. To support the minister, these functions were carried out by the DfT Rail Group. It sought to work with local government bodies and passenger groups to deliver a modern railway. Figure 30 reflects the strategic governance framework for the rail industry during the research period. At the operating level, the industry framework becomes more complex, with several interconnected actions occurring between multiple actors. Figure 31 shows an overview of the GB rail industry, courtesy of Clayton.[456] In 2007 the Rail Technical Strategy, which accompanied the UK Government's Delivering a Sustainable Railway white paper, outlined the desire to develop a GB railway which would have "world class reliability of both infrastructure and rolling stock."[457]

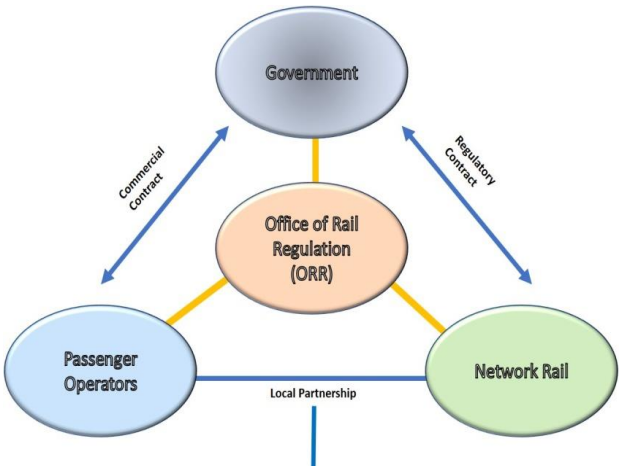


Figure 30: rail industry Strategic Governance Framework Source: DfT

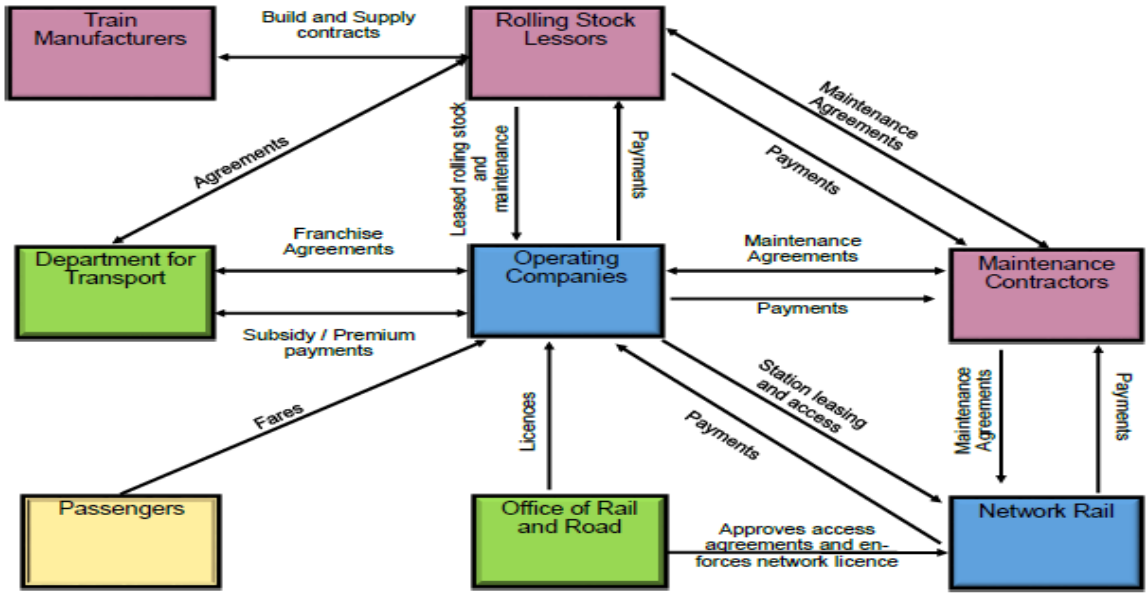


Figure 31: GB rail industry Operating Framework Source: Clayton

[455]McLoughlin P `ONS Decision on the Classification of Network Rail', Written Statement to Parliament, Department for Transport, 2013, available at www.gov.uk/government/speeches/ons-decision-on-the-classification-of-network-rail, accessed 12 May 2016.
[456]Clayton, R. J., *Re-integrating Railway Silos*, Research Paper, Loughborough University, UK, 2008.
[457]Department for Transport, Rail Technical Strategy (2007), Executive Summary, p.5 available at www.gov.uk/government/publications/delivering-a-sustainable-railway-white-paper-cm-7176, accessed 10 Mar 2017.

This natural monopoly phenomena allowed the infrastructure manager to continue to drive down the costs of maintaining the railway through obtaining the benefits of Dynamic Efficiency by the removal of a competitive market. The development of the franchise model for the railway operators aimed to develop a financial return and an increase in capability and technology across the network. The promised capability did not manage to keep up with the social demand, resulting in significant over-crowding and reduction in capacity across the network.[458] It was also based on a flawed privatisation model,[459] which failed to accept that there would be a rapid growth rate expected from the railway users, and the fact that there was little centralised control over the industry.[460] The initial regulation model delivered limited leadership and integrated planning, resulting in further Government interference, which did not deliver the required direction, increasing the pressure of regulation, impacting on RailTrack's share price and eventually leading to the creation of Network Rail.[461] It also caused the government to become more deeply involved in the strategic management of the industry.[462]

5.4 KEY ISSUES IMPACTING ON THE RAIL INDUSTRY

5.4.1 Strategic Leadership

Research into the rail industry identified that strategic interference by the Government resulted in complications within the breaking up of the railway industry.[463] While there was a distinct increase in passenger usage and cost decrease after the privatisation period,[464] there were severe concerns that this came at a cost of reduced maintenance capability, culminating in infrastructure failures that resulted in fatal accidents under RailTrack's stewardship.[465] In his transactional Cost Model of Economics Williamson indicates that businesses seek to function efficiently, rather than wastefully, and that ideally individuals will work together to overcome inefficient working practices to obtain the opportunity.[466] Bartle also analyses the human actor impact and the need to adapt to the changing market situation. He discusses the failed approach which resulted in a fragmentation of the initial implementation plan due to a rushed approach.[467]

[458]Frost, M.W., Ison, S.G. and Watson, R. `UK Rail Transport: A Review of Demand and Supply', *Proceedings of the Institute of Civil Engineers: Transport*, issue 166, 2012. Pp 225 -234.
[459]Department for Transport, *The Future of Rail, 2004*, pp. 9-10.
[460]Bartle, I, `Britain's Railway Crisis - A Review of the Arguments in Comparative Perspective', *Occasional Paper 20*, Centre for the Study of Regulated Industries, University of Bath, 2004; Murray, I., 'No Way to Run a Railway', Adam Smith Research Trust, ASI (Research) Ltd, Grosvenor Group Ltd, London, 2005; Frost, M.W., Ison, S.G. and Watson, R. `UK Rail Transport: A Review of Demand and Supply', 2012.
[461]Department for Transport, *The Future of Rail, 2004*, p.16.
[462]Murray, I.,'No Way to Run a Railway', 2005, p.15.
[463]Pollit, M.G. and Smith, A.S.J. , *The Restructuring and Privatisation of British Rail: Was it Really That Bad?* Institute of Transport Studies, University of Leeds, White Rose University Consortium, 2002. Available at www.eprints.whiterose.ac.uk/2468. Accessed 22 Jun 2017; Bartle, I, `Britain's Railway Crisis - A Review of the Arguments in Comparative Perspective', 2004; Glaister, S, British Rail Privatisation - Competition Destroyed by Politics, *Occasional Paper 23*, Centre for the Study of Regulated Industries, University of Bath, 2004; National Audit Office, `The Completion and Sale of High Speed' , Report by the Comptroller and Auditor General, Department for Transport, London, 2012.
[464]Pollit, M. G. and Smith, A.S.J., *The Restructuring and Privatisation of British Rail*, 2002, p.2
[465]Office of Rail Regulation, `Train Derailment at Hatfield; A final report by the Independent Investigation Board', Office of Rail Regulation, Department for Transport, London, 2006; Pollit, M. G. and Smith, A.S.J., *The Restructuring and Privatisation of British Rail* , 2002, p.2.
[466] Williamson, O. `Transactional Cost Economics: An Introduction', Economics Discussion Papers, March 2007, available at www.economics-ejournal.org/economics/discussionpapers; p.4
[467]Bartle, I., `Britain's Railway Crisis', 2004, p.4.

Due to these complex relationships mentioned in section 4.3, in 2010, with mounting concerns over the efficiency of the railway, Labour commissioned a strategic review of the value for money for rail, headed up by Sir Roy McNulty.[468] The report indicated that there were eleven principal barriers to the delivery of effectiveness across the rail industry (see Table 13); furthermore, to be efficient, the industry needed to achieve a 30% efficiency savings by 2019. The McNulty report identified the need to expand the ORR remit to allow it to focus on the safety of the industry,[469] rather than just the operational and technical aspects. This sought to create an efficient way of working across the industry and focussed on how the infrastructure manager operated, driving the development of an internal pricing mechanism for inter-departmental working. Recent strategic reports have noted that the industry is yet to learn effectively from McNulty's review, especially in the area of cross-industry culture and working relationships.

No.	Barrier	Narrative	Revisited
1.	The roles of Government and Industry	Lack of accountability and responsibility by the industry caused by constant government interference	2016 HoCTSC The Future of Rail report. 2017 HoCTSC Franchise report.
2.	Fragmentation	A culture of silo operating exists within the railway	2017 HoCTSC Franchise report. 2018 HoCTSC Timetable report.
3.	Poor operating mentality	Lack of customer focus and collaboration from Network Rail towards train operating companies, while operating companies focused only on short term gains.	2016 HoCTSC The Future of Rail report. 2018 Hansford Review
4.	Ineffective or misaligned incentives	Poorly structured and applied incentive framework for effective ways of industry working.	2016 HoCTSC The Future of Rail report. 2017 HoCTSC Franchise report.
5.	Franchising	Poor management of process by government.	2016 HoCTSC The Future of Rail report. 2017 HoCTSC Franchise report.
6.	Fare structures	Complex and not well thought out.	2016 HoCTSC The Future of Rail report. 2018 HoCTSC Timetable report.
7.	Lack of best practice models	No clear examples of best practice in key areas, such as project management or supply chain management.	2016 HoCTSC The Future of Rail report. 2018 Hansford Review
8.	Weak HR / IR management	Poor management and leadership within HR areas, resulting in wage drift and inefficient working procedures.	2016 HoCTSC The Future of Rail report. 2017 HoCTSC Franchise report. 2018 HoCTSC Timetable report.
9.	Complex legal and contractual frameworks	This causes excess in time, costs and impacts on effective working relationships.	2017 HoCTSC Franchise report. 2018 Hansford Review
10.	Lack of whole system approach	Desire to focus on own interests, rather than the industry, resulting in the maintaining of a silo culture across the railway.	2017 HoCTSC Franchise report. 2018 ORR May 2018 timetable disruption report. 2018 HoCTSC Timetable report.
11.	Poor culture and relationships.	It was stated that this was caused by a lack of leadership at industry level, supported by poor behaviours across the industry.	2016 HoCTSC The Future of Rail report. 2017 HoCTSC Franchise report. 2018 Hansford Review

[468]McNulty R., `Realising the Potential of GB Rail, Report of the Rail Value for Money Study', Summary Report, Office of Rail Regulation, Department for Transport, London, 2011.
[469]McNulty R., `Realising the Potential of GB Rail', 2011, p.67.

			2018 ORR May 2018 timetable disruption report. 2018 HoCTSC Timetable report.

Table 13: Performance of rail industry to Address McNulty Findings. Source: Author

Post the demise of RailTrack, Network Rail was appointed as the infrastructure manager assigned to manage the maintenance and running of the infrastructure, working in tandem with the TOCs, FoCs, and multiple contractors who are used to manage elements of the maintenance and repair of the rail network. [470] The success of the infrastructure manager lies in the technical knowledge, experience and capability of its staff, which creates major challenges for the current organisation leadership team.

The infrastructure manager was given a clear mandate from the serving UK Government to improve the safety, reliability and efficiency of the railway.[471] Issues of poor maintenance and lack of investment[472] resulted in the train services being severely affected, with almost a quarter of services running late at a time Network Rail assumed control.[473] As a private organisation, the company has a large national footprint, with over 35,000 staff responsible for the management of 20,000 miles of track which includes 32,000 bridges and tunnels, 17 major train stations and 8,200 commercial properties. Over 2,500 other train stations are leased to TOCs, but the company is still responsible for ensuring that these properties are being correctly maintained and invested in.[474] There is concern over the correct strategy for the industry. The House of Commons Transport Select Committee has remarked that the current strategy is unworkable, especially in the awarding of Franchising and building competition within a closed, natural monopoly. The infrastructure manager is attempting to conduct the strategic management of the infrastructure in an atmosphere of discord and ineffective strategic leadership. It is faced with constrained budgets, while also contending with an ageing workforce, constricting recruitment, reduced funding and the possibility of a polar shift in its cultural arrangement. Constant pressure to cut costs, increase passenger and freight carrying capability, while modernising a system much of which is over a century old and in a poor state of repair, required a cultural change of the business to focus on changing behaviours and social frameworks.

[470]Network Rail is the trading name for Network Rail Ltd and its various subsidiary companies which operate under its banner. The most well known of these is Network Rail Infrastructure Limited, which is the element responsible for the national rail infrastructure management.
[471]Network Rail website accessed 01 Sept 2014.
[472]This was highlighted as the main reason for the Hatfield train crash, where poor servicing and maintenance of the infrastructure directly contributed to the crash. The following attempts to blame vandalism and cover the poor maintenance led to the collapse of RailTrack.
[473]Network Rail website accessed 01 Sept 2014.
[474]Network Rail website accessed 01 Sept 2013

This cultural change is being driven through the development of training and core business frameworks, seeking to modernise the company's approach, developing a greater customer focussed and service aware industry. Not all change can be pre-planned. Palmer indicates that there are two key types of change which impact on an organisation, emergent and planned.[475] Organisations within the rail industry are facing emergent change as they are operating within a dynamic and complex competitive financial market for a critical resource, its workforce, and the ability to sustain and develop the rail network. This can be clearly witnessed in the events of July 2017, when the Government announced the cancellation of key railway electrification programmes.

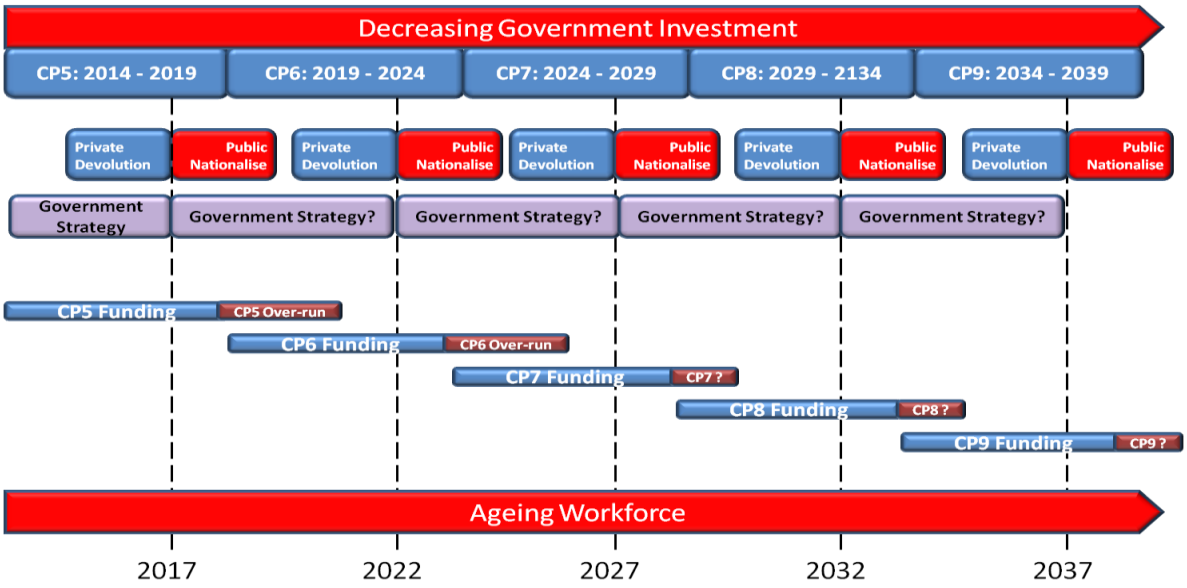


Figure 32: Strategic Operating Environment for Network Rail Source: Author

This highlights the complex strategic environment that the organisation is operating within, represented in Figure 32, with the x-axis representing time in years. The diagram highlights the decreasing government investment over time, represented by the upper trend arrow, as it forces the Infrastructure Manager to obtain more revenue from the Operators. At the same time, due to the current arrangement, the infrastructure manager operates within five year "Control Periods" (CP) which are funding periods. The organisation is only awarded funding for one CP at a time and, if any work runs over, money is not allocated until the completion of the CP. This is shown by the blue and red CP funding bar per control period. The blue representing funded investment, the red indicating potential overrun. If there is an overrun, then the CP strategic plan is immediately out of date, as is the funding agreement. During each CP there is also an election to be conducted, shown above the strategy layer, with Labour and the Conservatives having fundamental opposite opinions on how the railways should be run.

This situation places Network Rail in a difficult position, as Network Rail Infrastructure is not owned by shareholders and to that extent places it in a unique position as a natural monopoly within the UK.

[475]Palmer L, *Change Management for Managers: The No Waffle Guide to Managing Change in the Workplace*, Amazon, London, 2014, p.4.

Recently recorded as being 100% owned by Network Rail Ltd, it is subject to various official requirements, which, in the future, may open the options for it to be taken into government ownership if a future statute were to be raised. This now creates an environment of uncertainty, as at every election period, there is a risk the Rail strategy from DfT will be reviewed and changed, such as the 2017 -18 cancellations of several large electrical programmes. The lower red trend arrow indicates an ongoing loss of personnel through age, departure and aggressive recruitment from other organisations. This continues to impact heavily on the capability to deliver the required physical and cultural changes.

The rail industry operates as a natural monopoly due to the economy of scale required to deliver the infrastructure framework needed for an effective rail industry. As Ran, Kim and Horn discuss, few railways are fully privatised due to the cost for an organisation to invest in the building of a new railway to offer competition.[476] This situation, allied with the level of public interest and strategic impact the industry delivers, results in a high level of political interest, as shown in Figure 33.

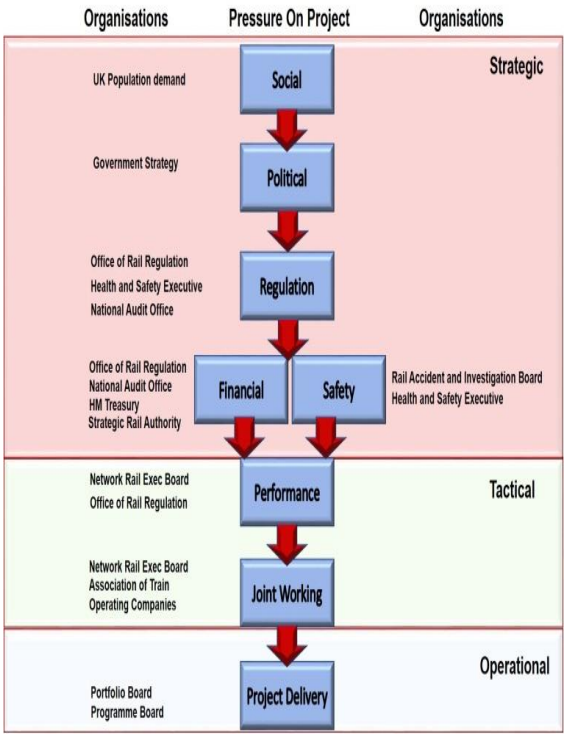


Figure 33: Strategic Pressures on Network Rail Source: Author

This political pressure has increased over the tenure of Network Rail due to several areas of concern with regards to the resilience capability of the GB rail network. As part of the analysis of the organisation in answering H_6 and H_7, the researcher conducted a review of the two key areas responsible for managing the daily operational running of the network. This analysis of the resilience capability within the Operations department and the Strategic Planning to enable the access to the network for other members of the rail industry would provide an understanding of the current situation.[477]

Recent analysis of the CrossRail programme identified that the cost of the new infrastructure being built was estimated to be £14.7bn[478] while in 2015 – 2016 the DfT spent £113m on the High Speed 2 Rail Link.[479] Therefore, the effective running of the railway during disruptive events relies on the skillsets and capabilities of those serving within the industry itself. The operational effectiveness of the railway is reliant on the training, experience and competence of those who are its custodians.

[476]Ran Kim, S. and Horn, A., `Regulation Policies Concerning Natural Monopolies in Developing and Transition Economies', United Nations Report, DESA Discussion Paper No. 8, Department for Economic and Social Affairs, New York, 1999.
[477]Ibid., p.8.
[478] Cabinet Office, `Major Project Authority Annual Report 2014 – 2015', Cabinet Office, London, 2015.
[479]National Audit Office , `Departmental Overview 2015 – 2016: Department for Transport', National Audit Office, House of Commons, London, 2016.

5.4.2 Effective Disruptive Event Management

Discussions and investigative research into the industry identified several concerns over the level of effectiveness of the quality of incident management within the elements focussed on for the purpose of the research. In 2011 – 2012 Network Rail presided over a continued growth of the British Rail network, with areas of success, such as the Olympics, helping to promote growth and a positive image. Simultaneously, the industry was operating under sustained pressure to deliver the substantial programme of enhancements to the network. In mid – 2013 Network Rail was working well within this area, beating its own targets for rail network disruptions caused by this work. However, other areas within the company were not fully functioning, with performance within England and Wales failing to attain all the required targets.[480] There was deterioration in the performance of passenger train service within the three areas of Long distance, London & South East, and regional. It was estimated that some 604,000 trains were affected overall.[481]

This poor performance affected the ability of the company to deliver the required target by the end of the Control Period 4 timeline.[482] Since 2015, The East Coast Mainline (ECML) franchise was failing to deliver, resulting in a backlog of maintenance efforts, while the Thameslink, Southern and Great Northern (TSGN) franchise was the worst performing on the network, heavily impacting the reputation of the rail industry. The impact of the storm surge of 2013 – 2014 on the GB rail network resulted in an extensive degradation across the southern regions of the UK and concerns about the resilience practices and procedures within the rail industry. Initial discussions with the Association of Train Operating Companies (ATOC) and the EPC identified that there was an embryonic approach to Business Continuity within the rail industry in 2013 - 2014, with several organisations beginning to explore the capability. This was also supported with the evidence gathered during the initial review of the current situation within Network Rail, demonstrating the low level of resilience education that existed within the organisation. Figure 34, based on information gathered through questionnaires to individuals within operational roles, identified a shortfall in developing the resilience capability at lower levels within the organisation. It was also noted that at this time, no formal strategic incident management training framework existed for the company.

Figure 34: NR Resilience Preparation Levels for Initial Role
Source: Author

[480]ORR Network Rail Monitor, p.2. Jun 13.
[481]Ibid, p.2
[482]Network Rail Control Period 4 ran until March 31 2014.

This poor level of capability was also identified by the Cabinet Office, with the EPC, located at Easingwold, tasked to develop strategic incident management and Business Continuity training for the transport sector in 2015. In 2010 the UK Government accepted that all CNI were at risk from natural hazards and recommended business continuity plans to mitigate against these risks.[483] It also advised the use of the then British Standard BS 25999 – Business Continuity Management, now replaced by ISO 22301.[484] In 2018, the Infrastructure Manager was yet to implement such a framework, placing it in direct breach of Government legislation; under the Civil Contingencies Act 2004, the company was mandated to have clear continuity plans and frameworks in place.

In 2008, an investigation by the NAO studied the National Passenger Survey which showed that 29% of passengers were unhappy with how incidents were managed. Of that total, 75% indicated a lack of information was the major cause, preventing them the ability to contingency plan and utilise the support that they were given by the rail industry elements.[485] The lack of communication across multiple parties, the poor incident management contingency planning and wider strategic mind-set identified in the Pitt report and the NAO, as well as the RAIB reports, resulted in brand damage at a time that the railway industry was trying to recover from a sustained period of neglect from the Railtrack era.[486] In 2012 an independent report into the impact of severe weather in Scotland by John Curley highlighted poor communication strategy, identifying that:[487]

> "During the storm events of the 3rd January the quality of communications to passengers and intending travellers deteriorated as the day progressed." *488*

It was identified that this was caused by the amount of information being received by the rail industry control staff within the various organisations. While the flow of information between Control and the TOCs was robust by the end of 03 Jan 2012, and strategic command was running conference calls and recovery meetings, it resulted in many critical management staff being diverted from their incident management roles for a significant period. [489]

There was also serious concern over the capability of Network Rail to work with third parties to rectify disruptive events, and its ability to contingency plan.[490] An Office of National Statistics report in 2013 identified that in the period of 2012 – 2013 the Network Rail debt was £30.7bn and as of the 01

[483]Cabinet Office, Sector Resilience Plans for Critical National Infrastructure 2010; Houses of Parliament Office of Science and Technology Postnote Number 362, October 2010. Available at www.gov.uk/government/organisations/cabinet-office; Cabinet Office, `Keeping the Country Running – Natural Hazards and Infrastructure', Civil Contingencies Secretariat, Cabinet Office, 2011, p.35. Available at www.gov.uk/government/organisations/cabinet-office.
[484]Cabinet Office, Strategic Framework and Policy Statement on Improving the Resilience of Critical Infrastructure to Disruption from Natural Hazards, 2010, p.6; Cabinet Office, Keeping the Country Running – Natural Hazards and Infrastructure, 2011, p.35.
[485]National Audit Office, `Reducing Passenger Rail Delays by Better Management of Incidents', 2008.
[486]www.independent.co.uk Network Rail and Balfour Beatty fined £13.5m for Negligence prior to Hatfield crash, 07 Oct 2005, accessed 25 March 2014.
[487]Curley, J., `Independent Review of the Industry Preparation for and Response to the Extreme Storm on 03 January 2012'. Written on behalf of Network Rail and First Scot Rail, Network Rail, London, 2012.
[488]Ibid, p.30
[489]Ibid, p.31.
[490]National Audit Office, `Reducing Passenger Rail Delays by Better Management of Incidents', 2008. P.6

September 2014 Network Rail would be re-classified as a central Government body in the public sector.[491] The impact that this may have on the company's reputation could be critical when aligned with the recent reports of failing to meet performance targets, poor customer relations and heavy historic fines for negligence and safety.[492] In 2012 the quarterly review indicated that Network Rail had failed to complete the priority maintenance tasks on high-risk bridges, resulting in a poor audit report.[493] There was also serious concern about the capability of the strategic infrastructure across the country, with the long-distance train travel capability performing poorly. This forced the ORR to issue an enforcement notice on the company, threatening a £1.5m for every 0.1% by which it failed to reach its target.[494]

> "I think that Network rail should deliver the Managing / Leadership training courses prior to appointment of a management position as this would give the prospective managers an insight of the requirements prior to them starting their positions as a line manager. However, anyone with the correct outlook on life will adapt and accept all problems as a challenge and overcome them."
>
> Respondent 1 (NR Resilience Questionnaire)

The failure to invest in staff training and development within the incident management domain at all levels resulted in a capability failure when it was required. In response to questions posed in the Operations department resilience questionnaire., it shows that over 40% of respondents (N=130) did not think that the resilience training available prepared them for their first role, impacting the confidence within the management teams of leading others in a disruptive event (Figure 35). The results noted that just over 15% of individuals questioned thought that they were properly trained in this activity. This highlights a real concern as to the level of capability within the organisation when faced with disruption.

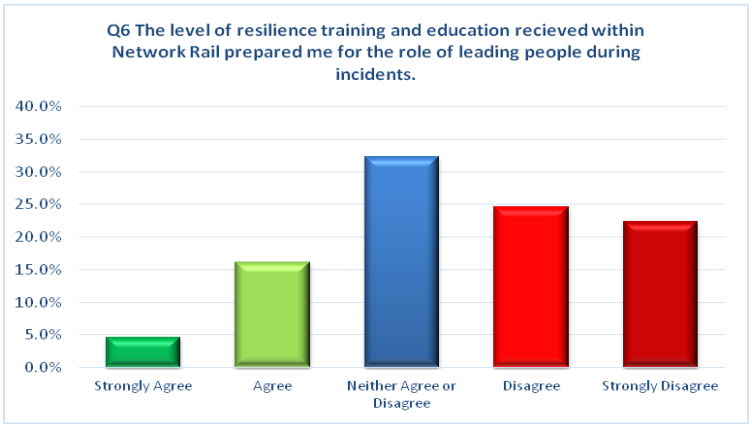


Figure 35: Ability to Lead Staff in Incidents Source: Author

In 2017 and 2018, investigations by RAIB and an independent party into several near misses on the railway, as well as a critical procedural failure which put several trainloads of passengers at risk,

[491]Department for Transport press release – 17 December 2013, accessed 19 April 2014.
[492]Network Rail Monitor CP4 Quarter 2, P.3; www.news.sky.com Network Rail fined £1m over crossing deaths, 15 March 2012, accessed 25 March 2014; www.telegraph.co.uk Network Rail fined £4m over Grayrigg train crash, 04 April 2012, accessed 25 March 2014; www.bbc.co.uk – Network Rail fined £500000 after Beccles level crossing crash, 27 Jun 2013, accessed 25 March 2013.
[493]Network Rail Monitor CP4 Quarter 2, P.10.
[494]Ibid, P.3.

identified similar issues to those that had been raised in 2008 and again in 2012.[495] Lack of effective training and competence management, collaborative working, practicing of incident management and effective situational awareness were mentioned within the findings. It was noted that the similarity of the events of 2017 and 2018 indicated that while investigations had identified the issues and potential actions to address them, these had not been put in place. This lack of implementation of lessons identified in 2017, driven by an underlying culture of acceptance, placed multiple passengers at risk of fatal injury in 2018.

5.4.3 Strategic Planning Issues

As the industry was aiming to address the issues around operational performance and managing disruptive events, it was in the grip of another crisis, which resulted in a strategic impact to the UK, the failure to deliver the May 2018 revised timetable. For several weeks train services were badly disrupted. On the Northern network up to 310 scheduled trains did not run each weekday during the disruption and 470 scheduled trains per weekday did not run on the GTR network.[496] The work by Glaister in September and December 2018 identified issues around the culture, behaviours, poor leadership and an acceptance of sub-standard planning within the industry when it came to the strategic planning of railway services.

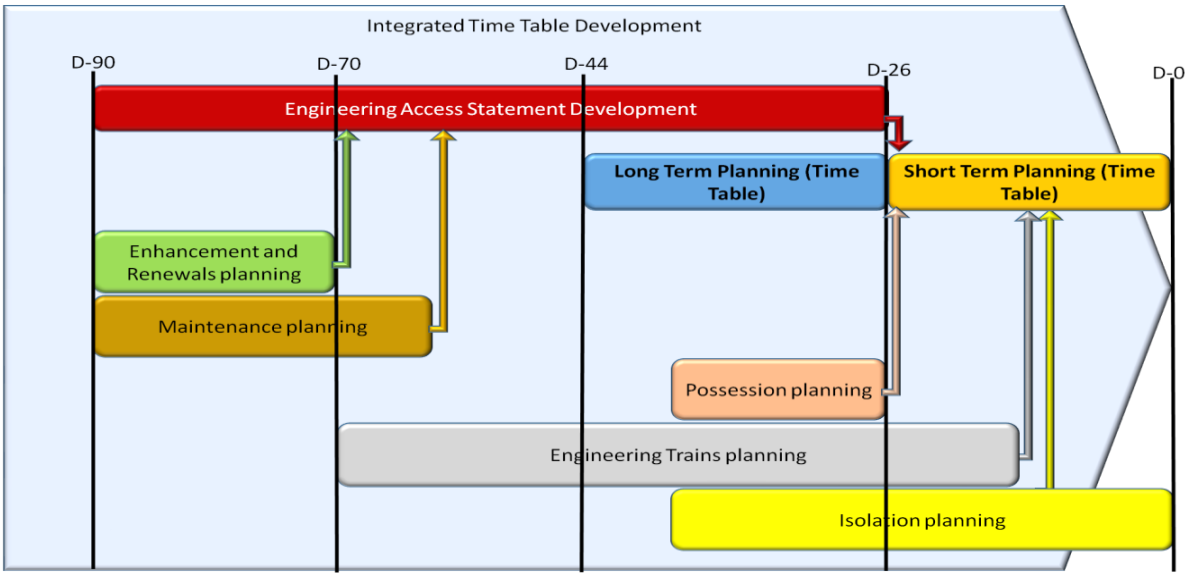


Figure 36: Timetable Development Process Source: Author

Research into the strategic planning process identified multiple areas of concern, with the processes used to plan the Railway timetable which is fundamental to Network Rail delivering its operating licence requirements (Figure 36). The timetable provides the synchronisation of all passenger, freight and maintenance trains that operate across the UK and international transport corridors. The current process is directed by the Network Code, Part D, which stipulates the timeline of the production cycle.

[495]RAIB, `Detrainment of passengers onto electrically live track near Peckham Rye Station`, RAIB Report 16/2018, Derby, UK, 2018; RAIB, `Self-Detrainment Of Passengers Onto Lines That Were Still Open To Traffic And Electrically Live At Lewisham', South-East London, RAIB Report 16/2018, Derby, UK, 2018.
[496]Glaister S., `Independent Inquiry into the Timetable Disruption in May 2018', Interim Report, Office of Road and Rail, London, 2018. P.7.

Each year there are two iterations of the main timetable. The primary timetable is released in May with the secondary timetable issued in December. This framework was designed to be in line with other European nations, and to also allow for the change from summer to winter and winter to summer timetables.

Figure 36 provides an example of the complexity of the timetable development framework that is detailed in the Network Code, in this case the integration of the engineering work being integrated into the wider timetable plan. D- 0 is when the timetable is implemented, with the timeframe being measured in weeks to delivery (D) timescales. Therefore, D-26, when the provisional timetable is handed across to the short-term planning team to implement, indicates 26 weeks prior to implementation. As this shows, most of the work to develop the engineering, maintenance and possession (worksite) planning is done in isolation away from the development of the long-term planning process, with the disparate elements only coming together 26 weeks before delivery. This creates a high-level of tension and workload for the short-term planning team, as they attempt to merge three separate strategies into one to deliver the timetable. Given the level of customer demand now being made on the operational rail network, the current iteration of the Network Code is increasingly at risk of not being fit for purpose for the 21st century. This in turn has caused issues for the train planning community, identified in the questionnaire responses obtained.

> "UK Government interventions and Network Code not efficient."
>
> Respondent 7 (NR Strategic Planning Questionnaire)

> "Train operators are allowed to make too many late changes to the timetable in "spot bids" making it difficult to allow enough time to fully validate the timetable. Network code should be more strictly worded in this respect."
>
> Respondent 6 (NR Strategic Planning Questionnaire)

Before operators can run their services on the railway, they are supposed to obtain access through the Sale of Access Rights process (Figure 37). This process gives the operators access to the railway network, allowing them to then plan the services they wish to run.

The process starts with the Event Steering Group (ESG), which plans and provides governance to the delivery of major infrastructure projects informing the industry of what changes / capability enhancements that may be available on completion of the work. Each train operator and Network Rail then agree a contract of access for the operator. This is a Network Rail internal process. If agreed, the submission becomes a section 18/22 (supported submission) and is forwarded for industry consultation and agreement by the regulator. If it is rejected, then it can proceed directly to industry consultation as a section 17/22a (unsupported bid).

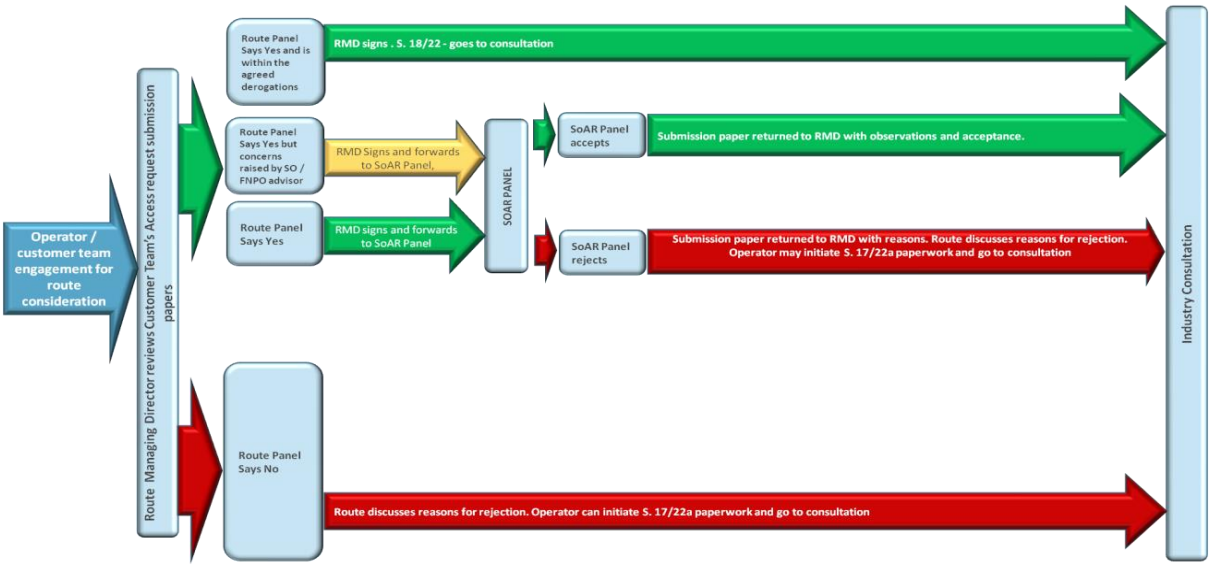


Figure 37: SoAR High-Level Process Map. Source: Network Rail

The simplified process is shown in Figure 38. Adding to the complexity of the timetable development phase, the SoAR process is failing to ensure all operators are being granted access rights to the network prior to the timetable being developed. This results in a number on contingency paths being planned, in case the operator is granted ratified access rights during the process.

Figure 38: Simplified SoAR Process. Source: Network Rail

The fact there is no service level agreement governing the time a SoAR request should take for the ORR to give their decision and sign off also impacts on the planning process. The SoAR process, as part of the wider investigation into the May 2018 timetable crisis, required a review after the ORR indicated that Network Rail had breached its operating licence in a letter to Network Rail's CEO.[497] Figure 39 shows the full complexity of the SoAR process and the sub processes. The four sub-systems are:

[497]http://orr.gov.uk/rail/consumers/rail-timetable-issues.

- System 1: Development of the SoAR submission paper;
- System 2: The strategic SoAR Panel process;
- System 3: Industry consultation phase
- System 4: ORR decision phase.

If Network Rail rejects the submission within sub-system one phase of the process, the organisation loses track of the submission until it returns via sub-system 3. This is due to the SoAR process being a Network Rail internal process, which train operators can circumnavigate and approach the ORR direct, via industry consultation, to obtain access to the network.

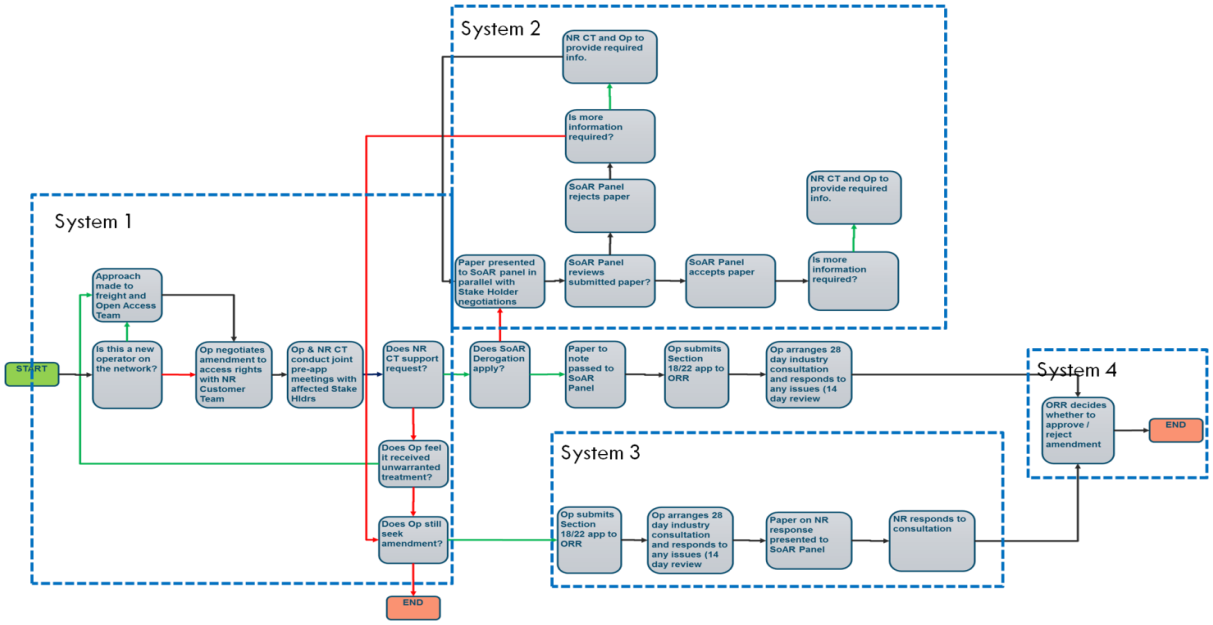


Figure 39: Sale of Access Rights Process: Source: Network Rail

This is common practice if Network Rail rejects the submission early in the process, which then creates siloed working and performance impact, highlighted by the comments shown below from the planning questionnaire:

> "Too much change, too many people involved in processes. Too much passed on accountability and few decisions made."
>
> Respondent 15

> "Everybody busy looking out for their own sections of responsibility, the amount of late change and unrealistic expectations."
>
> Respondent 49

Linked to this was a review of the strategic guidance document, the Network Code, which highlighted several concerns over the strategic guidance of the rail industry during the development of the national train timetable and breaking down siloed working. The Code itself, written in the late 1990s and regularly updated, is based on two assumptions that may be flawed. One, that there is always capacity available on the network and two, that the industry will work collaboratively. Unfortunately, both these

assumptions are no longer correct. Due to the increase in demand for access, there are areas on the network that are over-subscribed. Secondly, due to the competitive nature of franchising, the operators seek to bid against each other, aiming to increase or protect their market share. The very nature of this practice prevents a collaborative approach to the development of a strategic timetable, as operators seek to outbid each other. The impact of this situation manifests itself through late changes to the timetable, poor customer engagement, reputational damage and, in the worst case, failure to deliver an effective timetable to run the railway. This situation became an unfortunate reality in May 2018.

The investigative research into the rail industry identified several key issues that impacted its capability, reputation and performance, resulting in several strategic reviews and performance improvement notices from the regulator and government. There is the potential that the organisation may be able to learn lessons from the military. Having analysed the rail industry and where Network Rail sits within it, the next section will explore the second case study, the UK military.

5.5 UNDERSTANDING THE MILITARY AND RESILIENCE

5.5.1 Strategic Leadership – Setting the Direction

UK National Strategy is delivered by government through the appropriate application of three national instruments of power; Diplomacy, Military and Economic levers.[498] Interestingly, given the current threat of global terrorism and potentially a 2nd generation insurgency manifesting across the Middle East region, Information and Influence are not identified as strategic levers, though it could be argued that when fighting an insurgency, these are the two most powerful strands of strategic planning.[499] The NSS, the Building Stability Overseas Strategy (BSOS) and the International Defence Engagement Strategy (IDES) documents also identify the need to develop and maintain this capability to operate across multiple spectra utilising all components of UK capability, building on the thoughts of the UK strategic think tank which, in 2010, stated that:

> "The era out to 2040 will be a time of transition; this is likely to be characterised by instability, both in the relations between states, and in the relations between groups within states. During this timeframe the world is likely to face the reality of a changing climate, rapid population growth, resource scarcity, resurgence in ideology, and shifts in global power from West to East. No state, group or individual can meet these challenges in isolation, only collective responses will be sufficient. Hence, the struggle to establish an effective system of global governance, capable of responding to these challenges, will be a central theme of the era."[500]

Given the critical role that the UK's military delivers to the security of the nation, it is important that their activity is aligned to the political climate of the ruling government. The military are core to the security of

[498]MoD, JDP 0-01 British Defence Doctrine, 2011. p. 1-6.
[499]Mackay A. and Tatham, S., `Behavioural Conflict - From General to Strategic Corporal: Complexity, Adaptation and Influence', *The Shrivenham Papers*, 2009; Tatham S., *Strategic Communication: A Primer*, Advanced Research and Assessment Group, 2008; Tatham S and Rowland L., Influence Operations – Do We really Get It?, *British Army Review*, 2011.
[500]MoD, Strategic Trends Programme, 2010, p.10.

the UK, enabling the nation to establish the means to threaten or use force when all other levers of power are unable to protect the vital interests of the nation.[501] The 2015 IDES reflects the direction given in JDP 0-01 where "National Strategy also involves determining UK support to multinational operations".[502] Both documents highlight the importance of working with allies and within coalitions in order to build an Integrated Approach across the political spectrum. In 2015 the UK sought to build greater ties with the international military community through several defence engagement activities, working alongside DfID and FCO. These activities included support in the search for MH370, disaster relief in response to typhoon Haiyan and the Ebola crisis, and joint international visits to China and Japan.[503] Aligned to the NSS are the UK military standing strategic tasks which seeks to promote the strategic capability of the UK. These tasks also identify support to UK councils and civil bodies;

- Military Task 1 states that it is tasked with; *Providing strategic intelligence*, while
- Military Task 4 states the military will; *Support(ing) the civil emergency organisations in times of crisis*.

The inclusion of these two tasks as strategic requirements demonstrates the need to develop the understanding of the unfolding of potential risks and concerns, and the need to enhance UK resilience through the ability to support the emergency services. These tasks have been shown to be of national concern as Europe experiences lethal terrorist attacks, several extreme weather events which have impacted the UK during the period of 1990 – 2015,[504] costing over £11.8bn in damage. Two major events in the last decade were the floods of 2007 which cost £3bn in damage, and more recently the 2013 – 2014 winter floods which cost £1.2bn worth of damage. In 2020, the military is heavily involved in the UK response to the Covid-19 global pandemic, which, at the time of writing, had claimed over 31200 lives within the UK, and over 274,300 internationally.[505] The pandemic also created a cultural shift towards how UK industry operated, with the nation being placed into forced remote working conditions for a sustained period. As of the 10 May 2020, the cost to the UK economy was extensive, with the predicted growth for the year to be -3.8%, and over 6 million workers temporarily laid off. The military initiated the deployment of up to 20,000 individuals to respond to the situation, in line with the strategic response.

In 2007 the UK military issued the 2nd edition of their Joint Defence Publication (JDP) 02, The Defence Contribution to Resilience. This aimed to utilise the skills and supporting elements of the military to act, if required, in support of the UK Government, as well as building a framework to assist local councils in times of emergency. This doctrine sought to enable the military to train and develop its people in the application of the new skills being procured for the application for the Comprehensive Approach to also be used in support of national resilience if required. This approach sought to build on the lessons learnt

[501]MoD, JDP 0-01 British Defence Doctrine, 2011, p. 1-1.
[502]MoD, JDP 0-01 British Defence Doctrine, 2011, p.1-4.
[503]Ministry of Defence, *International Defence Engagement Strategy*, Director General Security Policy, Ministry of Defence, Whitehall, London, 2015. p.6
[504]Information obtained from The Telegraph, Met Office, www.gov.uk and Environment Agency sources.
[505]Data accurate as of 10 May 2019. Obtained from https://www.ecdc.europa.eu/en/covid-19-pandemic, accessed 10 May 2020.

from the application of practices, procedures and leadership in disrupted communities within war-torn nations, where the UK forces had operated either independently or as part of a wider NATO / UN task force.[506]

The range of tasks the military can expect to undertake also continues to increase, with concern over UK organisations funding illegal activity unknowingly, funding different warring entities, or their vulnerability to cyber-attack.[507] Attacks on UK businesses, such as the cyber-attack on TalkTalk telecommunications company, or the NHS, demonstrates the level of threat that exists. To combat this new level of threat, which is potentially a strand of new warfare in the future aimed at disrupting and destabilising a nation, requires advanced information security skills within the Defence Intelligence Sector. The attack on Talk Talk resulted in 157,000 customers having their data hacked and 15,000 losing financial data[508], costing the organisation up to £35 million immediately after the event.[509] Other threats are more apparent; recent images from Calais and the Mediterranean of large numbers of displaced migrants seeking to make their way to the safety of UK borders increases the strain on the resilience of local communities and the national infrastructure. Recent operations in Iraq, Afghanistan and Libya confirm this trend of increasing complexity.[510]

The military must increasingly work with civilian organisations and this inclusive approach is not just cross-governmental. It is an alliance between all those that have a stake within the complex battle-sphere. Figure 40 demonstrates this approach through the human dimensions of conflict and the recognised constituent parts of human society which, when aligned and effectively resourced and managed can create a functioning society. These tenets of society, and the supporting frameworks (such as history and culture) that weave them together, are critical to create a stable structure.

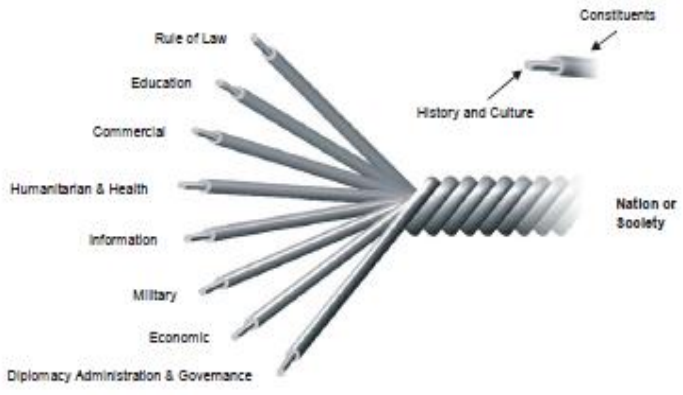


Figure 40: The Comprehensive Approach Model Source: MoD

Though the UK military have continued to develop greater technological weaponry, with supposedly better training and resources being delivered to frontline troops, the development of political engagement and an understanding of the cultural and behavioural aspects of warfare has been woefully lacking. The failure to understand the lessons of the Oman conflict (1965 – 1975), which occurred in

[506]Joint Doctrine and Concepts Centre (JDCC), *JWP 3-50: Military Contribution to Peace Support Operations, 2nd edition*, Ministry of Defence, 2004.
[507]MoD, JDN 3/11, 2011, p. 1-1.
[508]Farell, S., *The Guardian*: Nearly 157000 had data breached in Talk Talk cyber attack, dated 6 Nov 2015.
[509] Thomas D., (2015) Financial Times: TalkTalk warns cyber attack costs could rise to £35m, dated 11 Nov 2015; www.bbc.co.uk/news/uk dated 11 Nov 2015.
[510]MoD, JDN 3/11, 2011, 1-1.

similar terrain, with similar tribal factions and political fractures and apply them to the deployment of forces to Iraq was clear in the lack of clear political direction and rationale for the long-term strategic campaign. Just as concerning is the lack of recognition of the importance of working with state organisations and political primacy, as in Northern Ireland, to build a co-ordinated civil engagement approach. This was unfortunately very evident at the beginning of the Iraq and Afghan campaigns. Lord Richards, a former Chief of Defence Staff, states that:

> "At the same time, the civilian effort is primary. The military effort in Afghanistan in 2001 was not matched by a similar one in 2002 and 2003, and we paid for it later. And in 2006, while many countries were focusing on military efforts, there was no reliable system to cohere the civilian and diplomatic engagement."[511]

To enable the military to achieve its political requirement, it develops a military strategy which provides the high-level roadmap for the organisation against which to align objectives, resources and capabilities. In recent years, the ability of the UK Government to deliver a successful political strategy for military campaigns has been under scrutiny. It has failed to formulate effective strategy and, worse still, it has demonstrated a clear lack of how to conduct it.[512] However, research has also shown the senior military leadership failed to deliver the correct advice to the political leadership. There was also a collective failure of moral courage; Generals failed to challenge poor political strategy, limited resource allocation and the failure of the Ministry of Defence to adjust to a war-fighting role until 2006, under the new Chief of Defence Staff, Graham "Jock" Stirrup.[513]

Those that seek to describe themselves as strategists have a single purpose; to implement the theory of strategy. Strategy is there to educate those who seek to change policy into action.[514] They are the individuals that bridge the gap between the direction set by government and its implementation through action. Through proper strategic design, the Ends, Ways and Means for a successful outcome will be aligned to available resources, integrating resilience and agility into the requirement actions required for mission success.

The art of strategic planning is important to the development of the long-term organisational framework. The weaving together of the organisational strategy needs to link with other industry and political frameworks that exist. Based on the research conducted during this thesis, the strategic planning framework to deliver effective capability is shown in Figure 41.[515]

[511]Johnson, A.L., (ed), *Wars in Peace: British Military Operations since 1991*, Royal United Services Institute for Defence and Security Studies, Whitehall, London, 2014, p xii.
[512]Savill, M., `UK Security Strategy: Clarity or Compromise', *Defence Studies*, Volume 11, No. 3, 2011, pp. 359 - 295: Cavanagh, M., `Ministerial Decision Making in the Run Up to the Helmand Deployment', *RUSI Journal*, Volume 157, No. 2, 2012, pp. 48 - 54.
[513]Ripley T., *Operation Telic: The British Campaign in Iraq 2003 – 2009*, Telic-Herrick Publications, Lancaster, 2016, p.23.
[514]Gray, C.S., *The Strategy Bridge*, 2010, p.15.
[515]MoD, JDP 5-00 *Campaign Planning*, 2013, p.3-14.

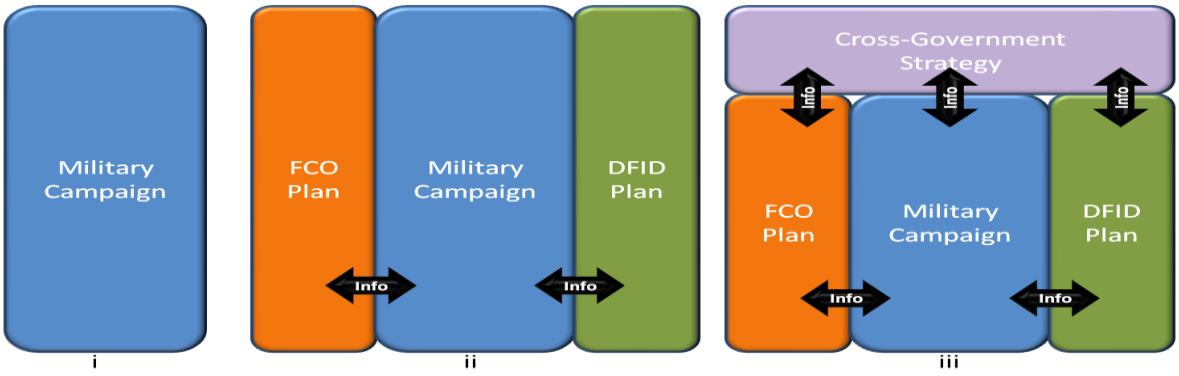


Figure 41: Campaign Planning and Political-Military Strategy Differences. Source: MoD

This shows three potential courses of actions for campaign planning, and the differences in implementation strategy. It may be a purely military led approach, with all actions conducted by military personnel, a military campaign guided by FCO and DfID input, or a fully integrated approach to the campaign, directed by a cross government strategy. The approach that is utilised is dependent on the situation that is facing the campaign, and the potential threats that exist; to develop the correct approach planners need to understand the principles of delivering a comprehensive approach to operations.

The questionnaires identified that the Comprehensive Approach was not being effectively taught to the lower levels of the officer corps, and the key integration of other government departments, or an understanding of their capabilities, was not presented in detail. Using the live case-studies as a model, the end-state mapping that was present aimed to reflect that which should happen on operations. The model, from the UK Doctrine, is shown in Figure 42.[516] It demonstrates the importance of understanding the end-state or strategic aim and aligning the various layers of planning to develop a coherent strategy, linking the operational tasks to the strategic end-state. This process supports the development of organisational resilience as the organisation understands its key deliverables which are

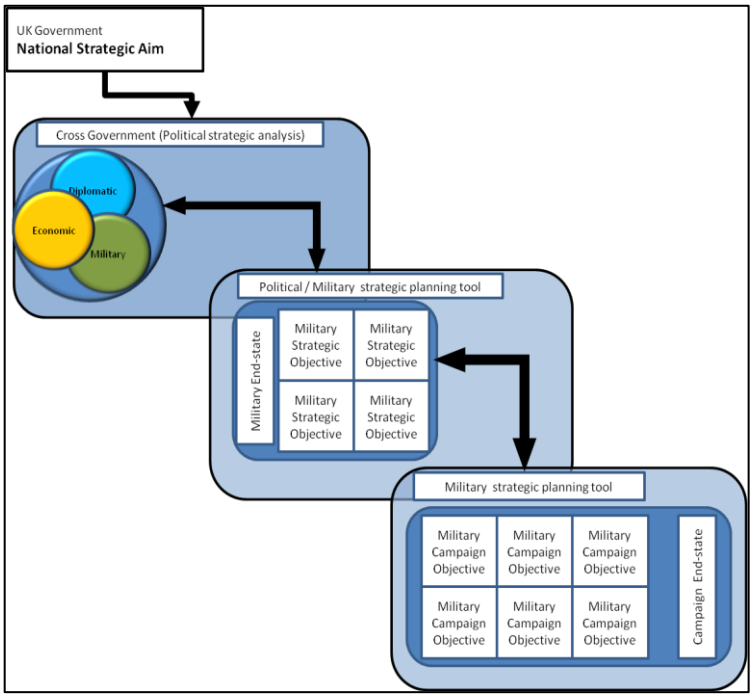


Figure 42: Developing a Political End-State. Source MoD

[516]MoD, JDP 5-00 *Campaign Planning*, 2013, p.2-16.

aligned against the strategic end-state; therefore, in times of crisis it can identify rapidly which systems and processes need to keep functioning, and which ones can be sacrificed to support the critical areas.

5.5.2 Managing Disruptive Events

The ability of multiple agencies to work together to develop National Resilience through the creation of organisational resilience within industry is critical to combating irregular activity or national crises which seeks to cause a detrimental impact to the UK, from within and without. Terrorist events in France, Germany and the UK during 2016 and early 2017 demonstrated signs of 5GW modelling, where disaffected elements of the home population are isolated, radicalised and weaponised against the parent state, conducting disruptive acts to damage social cohesion and community structures. This phenomenon is not new. Lind et al commented on it within their seminal article on 4GW in 1989 on how 4GW could morph and be enhanced. [517] Natural disasters, such as extreme weather, man-made crises and pandemics can also create threats to the resilience capability of a nation or an organisation. The effective training and development of staff provides an agile resource, able to adapt to changing situations quickly.

The military has sought to learn from previous errors and make great strides to ensure personnel who are in direct contact with critical parts of the organisation have the proper skills and the relevant tools, while training them to be attentive to their own skills and the events unfolding in the surrounding environment. However, recent investigations conducted as part of this research identified a limited level of capability within the military, particularly the Army, in the role of strategic learning advisors within the organisation. There were several instances of frameworks and vehicles being brought into service without the correct level of training and education delivered to the relevant staff. At the operational level, the development of doctrine, critical to building the knowledge base, had no formal training process in place for those involved in the development process. Rather it was the thoughts of those seen as experts in the field being captured, developed into a framework, then circulated around the organisation's leadership groups for comments and observations. Realising the threat that this posed to the organisation, the Army leadership group invested in its Reservist members, pulling expertise from industry into bespoke projects, minimising the risk to the organisation and utilising skilled personnel. This mobilisation of social capital enabled the Army to avoid a potentially disruptive event to its ongoing development of doctrine and critical training events for personnel. A detailed deep dive into the

Within the emergency services, `major incident' is an emergency planning term used to describe a situation that requires the implementation of special arrangements by one or more of the emergency services, and generally includes involvement of numerous resources. By declaring a major incident, this will activate extra support and resources to respond to manage the situation. An example, from a local resilience forum document, highlights the guidelines for calling an event a major incident: "an event or situation, with a range of serious consequences, which requires special arrangements to be

[517]Lind WS, Nightengale K, Schmitt J F, Sutton J W and Wilso G I, `The Changing Face of War; Into the Fourth Generation', *Marine Corps Gazette*, 1989, Vol 73 Issue 10, pp. 22-26, accessed from UK Defence Academy Online Library 15 May 2015.

implemented by one or more emergency responder agencies,"[518]" while the Civil Contingencies Lexicon, which is the document referenced by the rail industry when it comes to operations and used as the base document for the JESIP, states that a Major Incident is: "Implementation of special arrangements by one or all of the emergency services, the NHS or the Local Authorities."[519]

Within the military, the development and maintenance of organisational effectiveness, which is labelled `Fighting Power', is critical to success. This capability is obtained through the blending of the key areas of the organisation; the physical, moral and conceptual (intellectual).[520] The effective blending of these components develops resilience within the organisation, delivering functional components that are tailored to the role required of them. This concept is also being explored within business, with the analysis of military thought and the study of military doctrine and practices. Several military or Civil Service authors, such as General Elliot, Commodore Jermy, Major Simpson and ambassador Cowper-Coles have discussed the practices and procedures that they have experienced. The flexibility and agility of the military on operations was explored, with observations around collective planning, use of intelligence, methods and issues around communication, decision-making and leadership in crisis.

Figure 43: Fighting Power Development Source: MoD

Within business, there are stakeholder management tools which are very similar to Human Terrain Mapping frameworks seen on the walls of Afghanistan Command centres, and business intelligence and planning frameworks based upon the military intelligence gathering tools. These tools are used to manage change, either planned or disruptive, as they provide a mechanism to identify networks, information and effective resource management. The military planning tool also provides a level of rigour around the tactical and operational planning process, utilising questions to assist individuals in identifying key areas for investigation and consideration.

[518]Leicester, Leicestershire and Rutland Local Resilience Forum, *Major Incidents*, available at www.llrprepared.org.uk (accessed 10 Jul 2016).
[519]Wiltshire and Swindon Local Resilience Forum, *Major Incident Joint Procedures Guide* dated 2010, p. 12. Available at http://www.wiltshire.police.uk/information/documents/major-incident-planning/104-emergency-multi-agency-procedures/file (accessed 10 Sept 2015).
[520]Ministry of Defence, *Developing Leaders: A Sandhurst Guide*, Training Innovation Centre, Royal Military Academy Sandhurst, Camberley, 2012, p.4; Ministry of Defence, *ADP: Operations*, 2010, pp.2-2 – 2-3.

Within the rail industry, particularly the Operations Department, the military decision-making process has been incorporated into the incident management training given to the senior leadership teams (Figure 44). This process, based upon the tactical decision-making tool used by the military, seeks to guide the individuals through several steps, enabling them to develop a plan based on objective analysis of the situation and the information available. The use of the military planning tool in Table 14 is used to illustrate this; with the questions that the military ask as part of their planning process, they can easily be transferred to industry to develop a similar approach to building a standardised approach to planning.

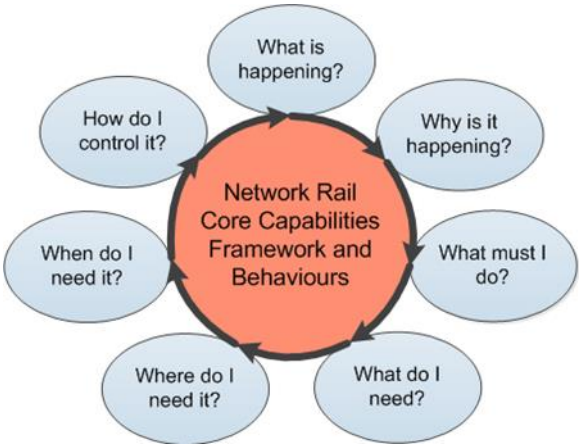


Figure 44: Incident Management Decision Making Tool. Source: Network Rail

Military Question		Business Component Equivalent
1	What is happening and why?	Risk / issue management, market and business impact analysis tasks and business intelligence gathering.
2	What is my part in the plan and how may it change?	Stakeholder engagement, business change, contingency planning and requirements analysis.
3	What direction to the team do I need to give?	Communications strategy, contingency planning, objective planning and task analysis.
4	What resources do I need?	Resource planning, financial planning, contingency planning and optioneering.
5	Where do I need my resources?	Logistical planning, movement plans and task analysis.
6	When do I need my resources?	Resource synchronisation, operations plan and logistical planning.
	Develop Courses of Action and choose best option	Optioneering, contingency planning, risk mitigation planning and logistical planning.
7	What control measures do I need to put in place	Portfolio, programme and project management capabilities, communication frameworks, governance and assurance frameworks.
	Wargaming plan	Testing the plan, issue, and consequence management frameworks, stakeholder engagement and alternative analysis.

Table 14: Military Planning Questions and Representative Business Activities. Source: Author

Managing disruptive events requires the ability to effectively manage disruptive, or emergent, change, through strong leadership, communication and maintaining situational awareness. Successful leaders, either in business or in conflict manage the change that the disruptive event causes through transformational leadership, building confidence in those around them. Cameron and Green note multiple skills (Table 15) required of an effective leader during change, noting that rarely are leaders proficient in all of them.[521]

[521]Cameron E. and Green M., Making Sense of Change Management, 4th Ed., Kogan Page, London, 2013, p.136.

Goal setting	Communicating vision	Facilitating
Monitoring and controlling	Building coalitions	Dealing with conflict.
Coaching and supporting	Networking	
Building vision	Negotiating	

Table 15: Qualities of an Effective Leader During Change. Source: Cameron and Green.

They also note that continuous improvement and the ability to learn is key in managing change, ensuring that lessons are captured and utilised in managing the nest disruptive event. This can be seen in the recent doctrine published by the military. The organisation has sought to capture and apply the lessons learnt from recent disruptive events, enhancing its collective understanding and building capability. The publication of an updated COIN doctrine utilised lessons learnt from Iraq, as well as from working closely with international forces, while a revised Operations doctrine brings together collective lessons from the tactical and operational level. An updated Resilience doctrine focuses on enhanced understanding of the need to work closely with the emergency services, introducing various ways of working and the joint doctrine framework that they employ.

Under the moral component, the military builds a strong cohesive bond through its culture and values. Using Hofestede's original dimensions of culture, the UK military demonstrates a strong sense of Collectivism when on operations, with a strong focus on the team mission, belonging and the building of tight knit bonds to manage the delivery of tasks. When reviewed against the organisational dimensions of culture, developed to study companies and business, the military on operations is a results-focussed, employee orientated, professional, closed system with tight control but is simultaneously pragmatic. This allows the organisation to get the best out of the personnel on the ground through the provision of clear direction, flexibility of an adaptive leadership mentality enhanced by a well-developed localised support network. The military also has developed the means to rapidly change the culture of teams, from warfighting to recovery to UK focussed operations. By understanding the cultural dimensions of teams, the military can, through training, education and understanding the strategic context, match the right team culturally to the task at hand. The result is a very effective, task focussed, team-based organisation where individuals will regularly go beyond their own normal working parameters for their colleagues. However, as this becomes the culture it risks becoming the normal state accepted by the leadership, resulting in the acceptance of doing more with less; a situation that was played out in Iraq and Afghanistan which impacted on the ability for the organisation to remain adaptable to the changing environment and impacted on its operational continuity.

A review of how the military utilised the elements of resource management, leadership, integration of digital communications and training to maintain organisation resilience while operating in complex, chaotic and contingent environments identified the complexities of modern warfare.[522] This is high-

[522]North, R., *Ministry of Defeat: The British War in Iraq 2003 – 2009*, 2009; Marston, D. and Malkasian, C., *Counterinsurgency in Modern Warfare*, Osprey Publishing, Oxford, 2010; Fergusson, J., *A Million Bullets – The Real Story of the British Army in Afghanistan*, Corgi Press, 2009; MoD, *AFM Volume 1 Part 10 Countering Insurgency*,2010; Ledwidge,F., *Losing Small Wars: British Military Failure in Iraq and Afghanistan*, 2012; Rid, T. and Keaney, T., (ed), *Understanding Counterinsurgency: Doctrine, Operations and Challenges*, Routledge, London, 2010.

lighted very effectively during operations which require the application of a comprehensive approach with other government departments and international partners.[523] This is explored in greater depth in the next section.

5.5.3 Strategic Planning - Developing a Comprehensive Approach

In 2006 the MoD, responding to Tony Blair's Labour Government interventionist approach, changed its approach to intra-state military operations, applying a new doctrine labelled "The Comprehensive Approach", which sought to build resilience within a nation state through the support of critical national functional areas within a multi-disciplined framework approach through NGO and OGD elements, supported by the military to create a safe operating domain.[524] This approach would enable the rapid delivery of a stable nation by focussing on critical civilian national structures, governance and financial establishment. By applying a population centric approach, based on the cultural requirements of the nation on which the intervention has focussed on, and enabling the re-establishment of the relevant key tenets of society, it was proposed that it would deliver the factors identified as critical to success. Lessons learnt from the events in the Balkans, Kosovo, Iraq and the early stages of Afghanistan also justified the need for a better integrated approach. It was clear that "coherence could only be achieved if strategic processes, planning and objectives were harmonised across all instruments and agencies"[525]. This formal government approach builds on the recommendation within the military publication on Peace Support Operations (PSO).[526]

To support the government approach to develop a culture of cross-departmental planning when faced with a potential political crisis, the military developed multiple joint doctrine publications aimed at integrating these principles of the Comprehensive Approach, weaving them into the standing military tasks.[527] This doctrinal approach demonstrates the incorporation of lessons learnt from previous intervention operations that occurred in the final decade of the 20th Century. Fundamental errors by United Nations forces during the Bosnian conflict, culminating in the slaughter of 8000 Bosnian males,[528] plus interventions in Sierra Leone and Kosovo led to the identification of the need to create a more robust approach when conducting multi-lateral operations. Though the Comprehensive Approach was aimed at operations outside of the UK, there are elements of the approach that can be utilised for home-based operations to support the UK population in time of crisis. To ensure that the development of the Comprehensive Approach was able to meet the requirements of the future state of warfare, and

[523]MoD, JDP 0-01 – BDD, 4th edition, 2011, p. 1-12; National Audit Office, `Defence Committee Investigation into the Comprehensive Approach', *NAO Paper for Defence Select Committee*, available at www.nao.org.uk/report/perspectives-of-non-governmental-organisations-on-the-comprehensive-approach-nao-paper-for-defence-select-committee, downloaded on 15 Jan 2016.
[524]MoD, *JDN 4/05 The Comprehensive Approach*, 2006.
[525]MoD, *JDN 4/05 The Comprehensive Approach*, 2006, p.1-1.
[526]Ministry of Defence, J*oint Warfare Publication (JWP) 3-50 Military Contribution to Peace Support Operations (PSO),* 2004, p.1-8
[527]MoD, *JDP 0-01 British Defence Doctrine*, 4th Ed, 2011; JDCC, *JWP 3-50 The Military Contribution to PSO*, 2nd Ed, 2004; MoD, *JDN 4-05 – The Comprehensive Approach*, 2006; Ministry of Defence, *Joint Doctrine Publication (JDP) 3-90 – Civil-Military Co-operation (CIMIC),* Development, Concepts and Doctrine Centre, UK Defence Academy, Shrivenham, 2006; MoD, *JDP 02 The Military Contribution to UK Resilience Operations*, 2nd ed, 2007.
[528]Johnson A. L., *Wars in Peace: British Military Operations Since 1991*, 2014, p.26

that the military would be effective in this role, they consulted with emergency services and other organisations to help develop a structure to deliver this capability on the battlefield.

With the drawback of the British Empire's reach during the latter half of the 20th Century, the UK aimed to avoid open conflict, seeking instead to utilise the levers of power to bring a successful resolution to conflicts. COIN warfare was a British forte, with the nation historically involved in COIN conflicts in numerous countries during and post the Cold War era.[529] The UK military have a long history of utilising political and community engagement approaches within campaign planning. Though not always successful when seeking to develop a multi-lateral approach employing military, political and socio-ecological options, the lessons that should have been learned offer a wealth of knowledge that can be accessed by any individual who takes the time to study history. This is especially pertinent when operating within regions littered with numerous belligerents, competing political, religious, social and cultural ideals and a population desperate for change and re-growth.

Since the cessation of the Cold War, the role of the UK military has been re-developed to return to the ability to conduct intervention operations and expeditionary warfare. Military personnel training focussed on the need to conduct contingency or major incident planning, with many of the senior non-commissioned officers (NCOs) and officer corps being extensively trained to deal with an unfolding, dynamic and often risk heavy environment. Lessons from the Balkans operations in the 1990s resulted in the need to develop a united "Comprehensive Approach" being identified in military doctrine as early as 2004 where:

> "Events have shown that the prospects of success in a PSO are much enhanced if a comprehensive response is used. In adopting such an approach, planning and execution must be coordinated across government departments and potential participants. Unfortunately, there remains a tendency for government mechanisms to be optimised for the demands of routine government, or short-term crisis response, rather than the specific, complex, and protracted demands of PSOs. In the absence of unifying leadership and suitable coordinating structures, the full range of contributions may not be used, or may be delivered in a less than efficient manner."[530]

JWP 3-50 doctrine publication clearly identified the challenges that UK Forces would meet in the future and the need for a multi-faceted approach to rebuilding resilience within a failing or failed state.

At the onset of the Iraq campaign in 2003 the UK sought to apply a similar approach to that of the American cultural way of warfare. This method of engagement sought to use a grinding strategy of annihilation, attrition and sheer weight of firepower and numbers witnessing the rise of net-centric warfare, unmanned aerial vehicles and effect-based operations.[531] This strategy was also replicated by

[529]Mumford A. `From Belfast to Basra: Britain and the Tri-Partite Counter Insurgency Model', PhD Thesis, 2009, p.1
[530]MoD, *JWP 3-50 Military Support to Peace Support Operations*, 2004.
[531]Gautam,P. K., Ways of Warfare and Strategic Culture, 2009, p.415.

other militaries, with governments seeking to reduce the risk of human casualties through greater application of technology and information sharing. As the Iraq campaign began to unravel in 2004 – 2005, and later the increasing presence of insurgents within Afghanistan, another approach was required. The Comprehensive Approach offered this as it directed a co-ordinated strategy across several government departments to deliver success. Based on the Hearts and Minds military strategy that was a success during the Malaya campaign for UK forces, or for the Sultan of Oman during the Oman conflict, the Comprehensive Approach suggests a lighter touch approach to campaign planning and implementation. However, history has shown that the Hearts and Minds strategy can include coercive, violence and destructive methods of delivery to seize the initiative from an opponent and shape the battlefield.[532] COIN operations also require extensive resourcing, long-term financing and political support and guidance. Analysis of the Iraq campaign demonstrated what happens when there is a lack of leadership, governance and effective assurance measures to develop a clear strategic planning framework for a long-term campaign. While the initial military campaign delivered success, the social reconstruction campaign failed within the UK's region. The report from the Special Inspector General for Iraq Reconstruction (SIGAR) in 2013 highlighted that key projects in Basra were delivered late and over budget on multiple occasions. An example is the Basra Children's Hospital, which was part of the Iraqi government's key social development programme, which was 200% over-budget and four years late.[533]

This clearly identified a gap in UK strategic planning and capability, with the lack of a co-ordinated strategy aligned to the three strategic levers of power quite evident in the confusion of the Balkans and Iraq. There was a need to realign strategic planning culture to enable it to be flexible to the operational requirement. The skills learnt on the congested and complex battlefield can also be utilised to help integrate a cross-governmental approach to complex crises, disaster response and large-scale humanitarian emergencies caused by extreme weather events. The organisation had, over a period of 15 years, transitioned from a culture of large-scale armoured warfare to multi-agency, government led stability building operations within failed or failing states. However, the required skill sets in developing the conceptual strategic planning capability were soon to be absent, with the failure of the campaign leaders to understand the culture and the mind-set of the population when faced with a major disruptive event and the required resilience building activities to mitigate the impact, while at the strategic level there was a failure of moral courage and effective leadership. Resilience is holistic and those tasked to develop the resilience of organisations must be able to influence all activity at strategic and operational levels, providing an active voice in the organisation's direction.[534] Only by understanding fully the dynamics of any particular situation or crisis can the appropriate range of activities be planned, orchestrated, reviewed and evaluated, and managed by strong governance linked to effective intelligence analysis and impact assessment.[535]

[532]Abe, N., What is the Universal Principle of "Hearts and Minds"?, Defence Research Paper, Advanced Command and Staff Course 16, UK Defence Academy, 2013, p.1
[533]Bowen S. W., `Learning from Iraq: A Final Report From the Special Inspector General for Iraqi Reconstruction', SIGAR, US Congress, 2013, p.11. Available at www.SIGIR.mil. Accessed 16 May 2015.
[534]Newnham, C., `Gold or Dust? Creating Resilient Organisations', 2012, pp.3-4
[535]MoD, JDP 0-01 British Defence Doctrine, 2011, p.1-11.

Building resilience, at either the national or organisational level, requires the right number of individuals with the right skill sets and with the right strategic direction. This promotes effective strategic workforce planning for the benefit of the organisation and the situations it may face, enabling the correct level of skilled personnel to be aligned to tasks to maintain organisational capability. Strategic workforce planning analyses future demands and situations to obtain a greater understanding of the environment and manage the risk of complexity within the sphere of operations. The reduction of the military force in the UK area of operations in Iraq from 43,000 to 11,000 during the period 2003 - 2004 was an example of a limited application of strategic workforce planning, driven "by a lack of strategic vision at the turn of the 21st century and a fundamental misunderstanding that the political objective and the military objective were not, and never could be, the same. The political aim, the policy, was simple but totally misguided".[536] This impacted on the Military capability to build its own effective strategic plan, as it had no clear understanding as to the final political aim of the campaign.

5.6 MILITARY CASE STUDIES

To build a greater awareness of how the UK military managed the complex issues that it faced, the three case studies summaries (Table 17) chosen for analysis all focus on the need to apply the key components raised in the previous section. Effective blending of these core components of building Organisational Resilience against complex problems provides a framework within which to work successfully. The application of shared knowledge, accepted joint working practices and intelligence driven operations to maximise the use of the available resources, is critical for both the military commander and the business leader. The review of the case studies pulls out these lessons to support the development of the ORM3 framework and guidance on its implementation. The case studies raise the learning points from each study, demonstrated through success or the failure to apply aspects of an organisational resilience in disruptive situations. The combination of these learning points creates a base proposition, shown in Table 16, and aligned against each case study that it was identified from in Table 17, for developing the ORM3 framework, which is discussed in detail in Chapters 7 and 8.

Importance of setting, communicating and maintaining a vision to deliver	Effective understanding of risks, hazards, vulnerabilities and operational requirements	Effective resourcing of the tasks to enable the delivery of the long-term goal	The need to have the correct moral legitimacy to operate effectively
Investment in strategic leadership to set the required culture	Investment in the right level of leadership with the correct skill sets	Building social and ethically accepted operational approach	The need to develop and sustain the correct culture to provide the potential for success
Effective communication and sharing of the end state	The need to develop and sustain situational awareness	Empowerment of teams to deliver the outcomes in a realistic timeframe	Investment in collaborative working

Table 16: Key Resilience Components from Military Case Studies.

[536]Ledwidge, F., *Losing Small Wars*, 2012, p.124.

These issues are as important for UK industry to understand as they are for the UK military. As the three case studies have shown, critical to understanding why the military is organised and how it does business is the awareness of the underlying tenets of doctrine and the primary source of military culture. The importance of setting the strategic context for the campaign and developing the direction of travel is fundamental in setting a purpose for the military organisation. The case studies of Oman and Northern Ireland demonstrate that if an organisation implements an effective strategy, which is politically supported and resourced effectively through cultural awareness and intelligence, the potential for success is high. Iraq demonstrated what happens if the reverse occurs; the failure to build the correct culture, develop a defined vision, understand the current threat that the organisation faced, apply lessons learnt or implement a co-ordinated approach through strong leadership and a defined end-state creates a detrimental impact on the capability for delivering success.

5.7 SUMMARY

The research conducted into the railway industry and military has demonstrated several mechanisms that may be present within the military that potentially could provide a means to develop organisational resilience within industry. It has also identified areas which impacted on effective resilience capability development, which are further discussed in Chapter 7 during the design of the ORM 3 framework. Within the rail industry, persistent political interference and poor direction by strategic bodies have resulted in a highly fragmented natural monopolies being allowed to develop, often with critical failings being noted but rarely effectively mitigated until it is too late.

The research that was gathered as part of the initial investigative findings of the current situation within the rail industry, focussing on the two key departments within Network Rail, highlighted glaring concerns within the disruptive event management capability, and the strategic and tactical leadership frameworks within the strategic planning teams. These findings are supported by several strategic reports, already referenced in this chapter, which point to a fundamental failing of industry strategic leadership, a siloed culture, individual rather than collaborative working, poor behaviours and a lack of unity in effort across the industry. In response to H_6, the current Organisational Resilience capability within Network Rail is limited. By the end of 2018 there was no strategic business continuity plan, which, as a category 2 responder, making it non-compliant to government legislation under the CCA 2004. The fractured resilience framework, siloed working, cultural issues and limited proactive development of staff and investment in human capital is also a concern.

For the railway these issues are not new; they have been identified in several reports and research documents since 2004. This raises the situation that not only does the railway suffer from several fundamental issues when it comes to planning and managing the response to complex disruptive events, it is also demonstrates a critical failure to learn from past events and address these issues. Key to developing Organisational Resilience is the ability to review, learn and adapt from incidents and events. This research has shown that unfortunately this is not the case at the tactical and strategic

levels of the rail industry, with RAIB reports consistently raising the same issues; from this it is clear that the organisation is yet to embrace an effective learning culture.

For the military, the engagements in Iraq and Afghanistan became drawn out affairs, draining the nation's resources while diffusing key assets, prestige and power.[537] Conflicts of intervention became grand strategic campaigns of political survival requiring a single identified and clearly communicated political aim to build military strategy around. It is rare that a COIN campaign can pinpoint the point in time that turned the tide of the campaign. In the case studies that this research reviewed, these points can be identified. For the Oman campaign it was the day Qabus came to power and implemented a well thought out, structured and aligned Comprehensive Approach. For Iraq, it was the day that the Coalition leadership made 400,000 individuals who belonged to the Ba'ath party unemployed. In both these instances the situation changed instantly. For Oman, it was beneficial, for Iraq, catastrophic. The failure of the UK political and military leadership to develop an effective Comprehensive Approach for Iraq and Afghanistan has resulted in the eroding of the UK's standing globally.

This chapter has analysed the military and industry organisations in the areas of leadership, strategic planning and effective management of disruptive events. Each organisation has shown that while there are numerous lessons that it could have applied to improve its performance, several opportunities were lost, leading to disastrous consequences to both reputation and capability. For the rail industry, the review of the recommendations made by McNulty has shown that the organisation has still failed to apply the critical learnings, which has led to continuous strategic reviews and concerns over the performance of the rail network. For the military, the failure to understand the lessons from numerous COIN campaigns and the failure to effectively plan for the post conflict element of the Iraq campaign demonstrated a strategic failure of the executive leadership. The case studies have demonstrated that while both organisations have a surface level learning framework in place, they do not yet possess the maturity to be classed as learning organisations. However, the analysis has also identified a base set of components that can be taken forward to develop the ORM3 framework around, based on the lessons pulled from each of the case studies. The following chapter discusses the research findings in detail, identifying key areas of concern that impact on the resilience of the relevant organisation. Following this, Chapters 7 and 8 design and build the ORM3 framework.

[537]Milevski, A Collective Failure of Grand Strategy – The West's Unintended Wars of Choice', 2011, p.30.

Oman 1965 - 1975	Northern Ireland 1968 - 2005	Iraq 2003 - 2009
The Oman COIN campaign demonstrates the benefit of clearly linking political strategic planning, grand strategy and tactical planning. By understanding the situation through intelligence gathering and effective analysis to confirm the political direction enabled the Sultan of Oman to maintain the strategic aim effectively while building national resilience within a divided kingdom. The Oman campaign also provided key lessons that were not identified prior to the intervention into Iraq in 2003. Having similar terrain, cultural schisms, operating climate and tribal arrangements, the Dhofar campaign provided several key lessons that could have been applied to the Iraq conflict. Unfortunately, as history has demonstrated, this was not the case although the UK military trained and exercised in the Oman for desert warfare experience, they forgot to review and apply the lessons of fighting a COIN campaign within a Middle Eastern nation.	The Northern Ireland campaign (1968 – 2005) against the insurgency that was driven initially by the Irish Republican Army (IRA), and subsequently from 1974 the Provisional Irish Republican Army (PIRA). This campaign is a good demonstration on the importance of committing to an operational / political Comprehensive Approach to build cohesion and a unified message across an organisation. By operating collaboratively with local government, security forces and within the international arena, the PIRA campaign was eventually defeated, and its leaders brought to the negotiating table. It provides key lessons on understanding the length it takes to build resilience, the importance of the vision and the need for strong, unified leadership as well as a deep understanding of the cultural landscape that exists within the operating environment.	The recent campaign in Iraq (2003 – 2009). The deployment of forces into Iraq in 2003 saw how the failure to adapt to the current threat and a failure to understand the contemporary conflict arena could cripple any attempt to build resilience within a failing state. Professor Richard North questioned the preparation of the UK Forces to deliver current capability in Iraq, when money was being diverted into the purchase of high intensity war equipment for potential future state on state conflicts.[538] Key to building resilience within a nation or an organisation is understanding the current operational and strategic climates, potential risks and underlying issues. In 2003 this was not the case for the British Forces, who believed that the population would welcome as liberators and that developing provincial resilience, key infrastructure and security framework, similar to how it had occurred in Northern Ireland.[539] Lessons identified during the Oman campaign three decades earlier had not been fully embraced, which was to lead to disastrous consequences for the British.
Lessons for Building Resilience		
The lessons that this campaign highlights with regards to building organisational resilience are: • Importance of setting, communicating and maintaining a vision to deliver; • Investment in strategic leadership to set the required culture; • Effective communication and sharing of the end state; • Effective understanding of risks, hazards, vulnerabilities and operational requirements; and • Effective resourcing of the tasks to enable the delivery of the long-term goal.	The lessons that this campaign highlights with regards to building organisational resilience are: • Importance of setting and maintaining a vision to deliver; • Investment collaborative working; • Building social and ethically accepted operational approach; • Empowerment of teams to deliver the outcomes; • The need to develop and sustain situational awareness to be aware of vulnerabilities and operational requirements; and • Accept building resilience will take time.	The lessons that this campaign highlights with regards to building organisational resilience are: • Importance of setting and maintaining a vision to deliver; • Investment in the right level of leadership with the correct skill sets; • The need to develop and sustain the correct culture to provide the potential for success; • Effective understanding of risks, hazards, vulnerabilities and operational requirements; and • The need to have the correct moral legitimacy to operate effectively

Table 17: Military Case Study Summaries and Resilience Lessons

[538]North, Ministry of Defeat, 2009, p.2.
[539]North, Ministry of Defeat,2009, p.2

CHAPTER 6: RESEARCH FINDINGS

6.1 INTRODUCTION

This section analyses the findings of the research conducted in line with Chapter 3 under the research methodology. Within this element of the thesis the research findings from the investigative work into both the rail industry and the military are captured. Following on from Chapter 3, it discusses the participants who were involved, the results obtained, along with analysis of the findings and map them back to the research aim and the relevant questions identified to help demonstrate the response to the aim. The aim of the thesis is:

> *The development of an Organisational Resilience Management Maturity Model (ORM3) framework to enable organisations to unite the various operational functions within the business, creating an internal resilience against potential threats and crises which can be implemented through strategic leadership.*

To enable this, there was the need to understand what issues both the military and industry case study organisations were experiencing, and how the military, which has a high level of Organisational Resilience on operations, develop and sustain their capability over an operational deployment. The key output of the research framework was to analyse the flexibility and methodology of how the military developed Organisational Resilience capability and how the individuals within the organisation rate that capability. To conduct this, the key objectives of the research were to answer the following research questions mentioned in section 1.5, while the study conducted in Chapter 5 has answered H_7. The remaining answers were obtained through the application of the following tasks during the research period:

- The analysis of the current understanding and writings on Organisational Resilience;
- The analysis of the current Organisational Resilience situation within the GB rail industry;
- The analysis of the Comprehensive Approach through military case studies;
- Identification of methods the UK military employ to build Organisational Resilience; and
- Observations of the military operating within complex situations and how they manage to maintain Organisational Resilience capability.

6.2 SETTING THE RESEARCH CONTEXT

H_1 can be answered through understanding how the military plan for operations; it develops its resilience through intense virtual and physical training exercises run on numerous training estates, where the UK military conduct Battlegroup and Brigade size manoeuvres. Recently, there have been additions to the

training area to simulate Middle Eastern villages, with exercises being redesigned to incorporate COIN training events. Regular Mission After Action Reviews (MAARs) and Campaign Learning Symposiums are conducted to enable the transfer of knowledge from the operational unit currently in theatre to the successor unit being prepared for deployment. Lessons learnt, from successful and failed events, are also captured, discussed, written down and circulated. This continuous approach to improvement and development is part of the mission culture for the military on operations, with key lessons being integrated into training sessions to ingrain the information. These physical training events are also supported by large scale combat exercises involving either the whole organisation or the leadership teams, dependent on the training cycle, in a virtual domain. This virtual training capability provides the opportunity to stretch teams and place them into complex, multi-scenario events which require teamwork, resilience, evidence-based analysis and collaboration across multiple partners.

The military have been very successful in the large-scale, manoeuvre warfare on which its war-fighting and military culture was based, though the application of a more resilience building strategy against an aggressive insurgency quickly highlighted shortfalls in technology, vision, intelligence gathering and exploitation, leadership and capability. The observation of military teams during the planning and implementation of resilience activities was developed to obtain data on how teams reacted when tasked to plan for an event, and how they responded as the event unfolded in a dynamic, non-linear fashion. This approach was then used in conjunction with questionnaires and interviews to validate and cross reference findings. The researcher created a live exercise scenario, based on actual operational events, to enable the observation of teams conducting their planning and implementation of resilience building activities. This live case study enabled the observation of leadership staff managing complex situations and their ability to adapt under pressure. The initial exercise was deemed to be of merit and was refined and incorporated into formal training for command staff in preparation for deployment to Afghanistan from 2012 onwards.

6.3 PARTICIPANTS AND DEMOGRAPHIC CHARACTERISTICS

For the purpose of the military analysis, the participants were drawn from across nine separate BG headquarters staff who were attending pre-deployment combat operational training prior to entering the final preparations for their transit into Afghanistan. For the purpose of the data gathering, including the live case study, the Company / Squadron Group (sub-unit) was the unit of measure. Depending on the exercising unit, this could vary from 90 – 120 individuals, supplemented by the attached support staff that had been assigned to them. Figure 45 demonstrates the military organisation of a Sub-unit group, the smallest tactical unit deployed independently, broken down into components, delivering an enhanced capability as the relevant systems work together to develop greater capability through the ability of intelligence gathering and analysis, core military activity, evaluation and lessons learnt. The live case study was designed to observe this capability within a sterile training environment.

The respondents to the questionnaires, interviews and live case studies were of differing ranks and experience, as would be expected to be found within a normal military unit being deployed on operations. As is representative of the BG structure, there was a blend of front-line Combat Arms, Combat Support and Combat Service Support personnel. While it was not normal for servicewomen to serve within the frontline Combat Arms units in the infantry or armoured role at the time of the data gathering, servicewomen were present in the Combat Support and Combat Service Support elements of the BG formation. Servicewomen were also present across the rank structure within the Combat Support and Combat Service Support roles. This observation is of importance as it provides evidence that demonstrates the UK military does enable women to operate within the Frontline Role during Combat Operations. Of note was the attachment of servicewomen to the frontline units through Royal Artillery and Royal Engineers support elements. Although described as Combat Support elements, the Armoured Engineer Reconnaissance Officer and the Royal Artillery Fire Support Team Commander were both found to operate with or in front of the Combat Arms units. For the purpose of the live case study, questionnaires and the interviews, no differentiation was made between male or female; the investigations observed how the groups interacted and how individuals were prepared for operational deployment.

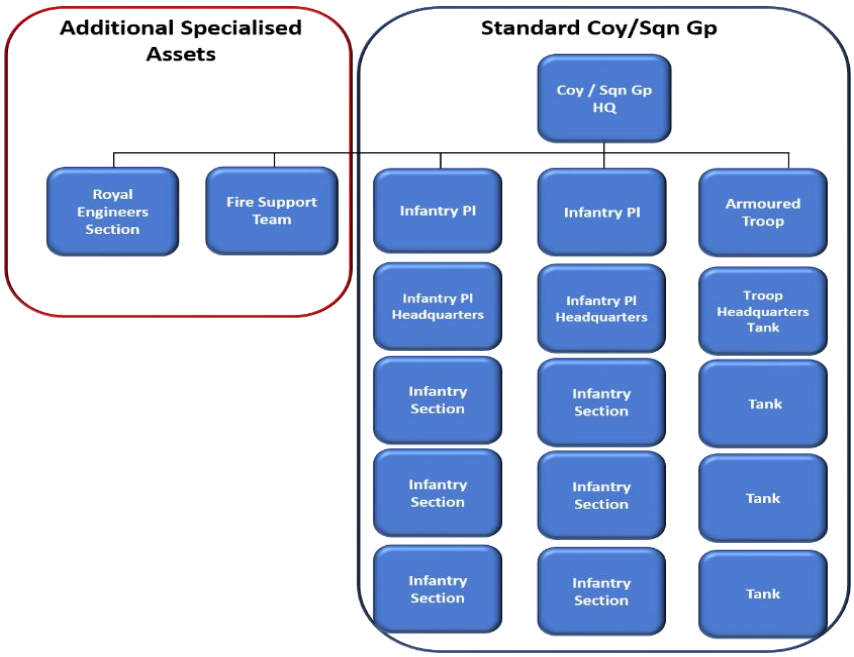


Figure 45: The Company / Squadron Group as a System of Systems
Source: Author

The headquarters role was to complete a successful operational level plan to manage the complex tasks that had been set by their higher command to build resilience within their area of operation. This would involve the creation of military combat operations, security sector building, population engagements and military / NGOs and OGDs redevelopment activities, all happening concurrently through its various component parts. This was replicated for the live case study, enabling the observation of the team managing complex situations with multiple components of their system.

During the live case study observation period, which occurred over two days, the participants were observed in their natural role, with the headquarters communications, IT infrastructure and temporary accommodation and real-life support also present. Realistic combat information, events and occurrences were provided through a virtual synthetic battle-space simulation, enabling accurate

reporting, geo-location of personnel and information generated based on events. The Headquarters formation was developed as a system of systems, replicating the complexity of real-world operations. Figure 46 shows the sub-unit group, again broken down into its components, detailing how it would be structured for current operational requirements. It demonstrates how operating as a collection of systems, the organisation builds flexibility, adaptability and resilience through direct control of core units, or managing the tasking of supporting units. The sub-unit group is an element of the BG formation.

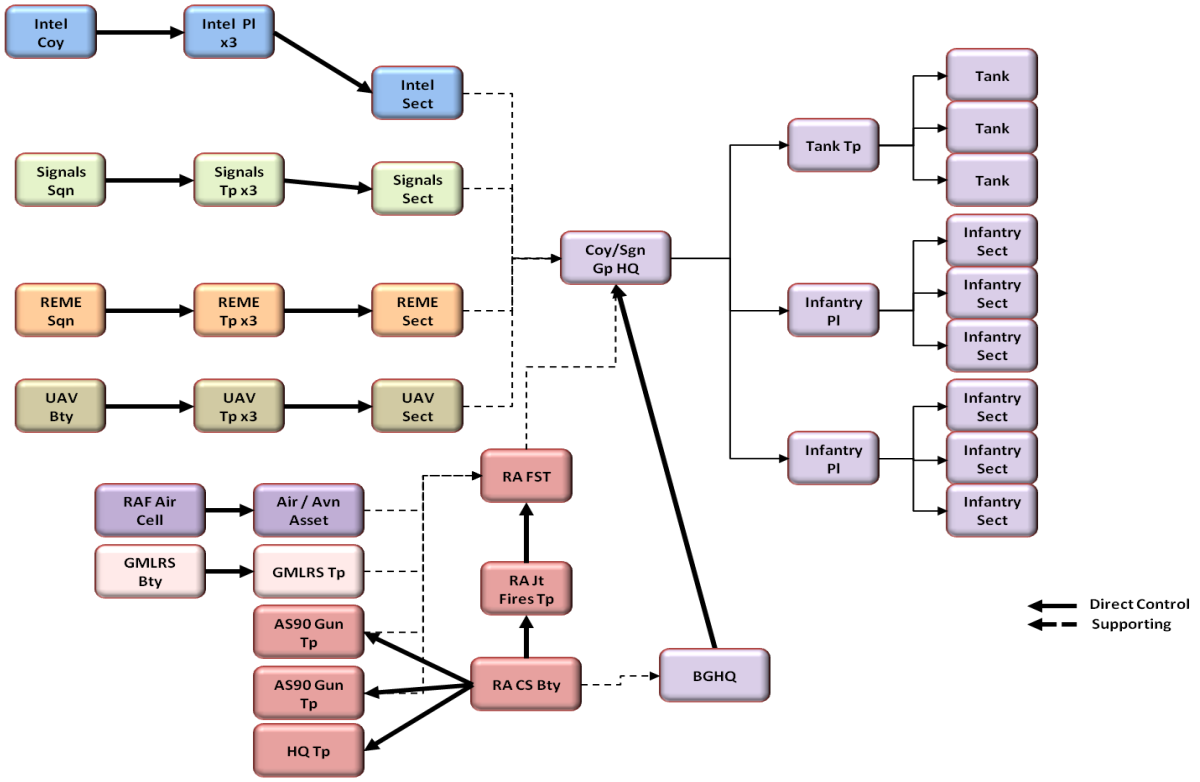


Figure 46: Coy/Sqn Gp Systems Mapping Source: Author

This enabled the participants to experience the complexity of multiple platform operations during a difficult and dynamically changing problem as it unfolded within a challenging environment. The observation team circulated within the headquarters, observing practices, processes and interactions, capturing notes and evidence that were recorded in the observation report. Each BG headquarters experienced two cycles of operational planning. This enabled the observation team to provide feedback and support after the first event and then observe to what extent the BG amended their behaviours, approaches and practices based on this knowledge. This is important, as it assesses the capability of the headquarters as an organisation to become a dynamic learning organisation and how rapidly they assimilate and integrate lessons from previous mistakes. The next section explores the relevant data results from the data gathering tools used to capture information from the military groupings, and the significant findings from the analysis of this collected evidence.

6.4 RESEARCH DATA GATHERING TOOLS

In line with the research strategy, the research programme utilised a five work-stream approach to gathering information for analysis and cross referencing. The five streams of data gathering that were employed during the evidence gathering period to build greater situational awareness across the research area (Figure 47):

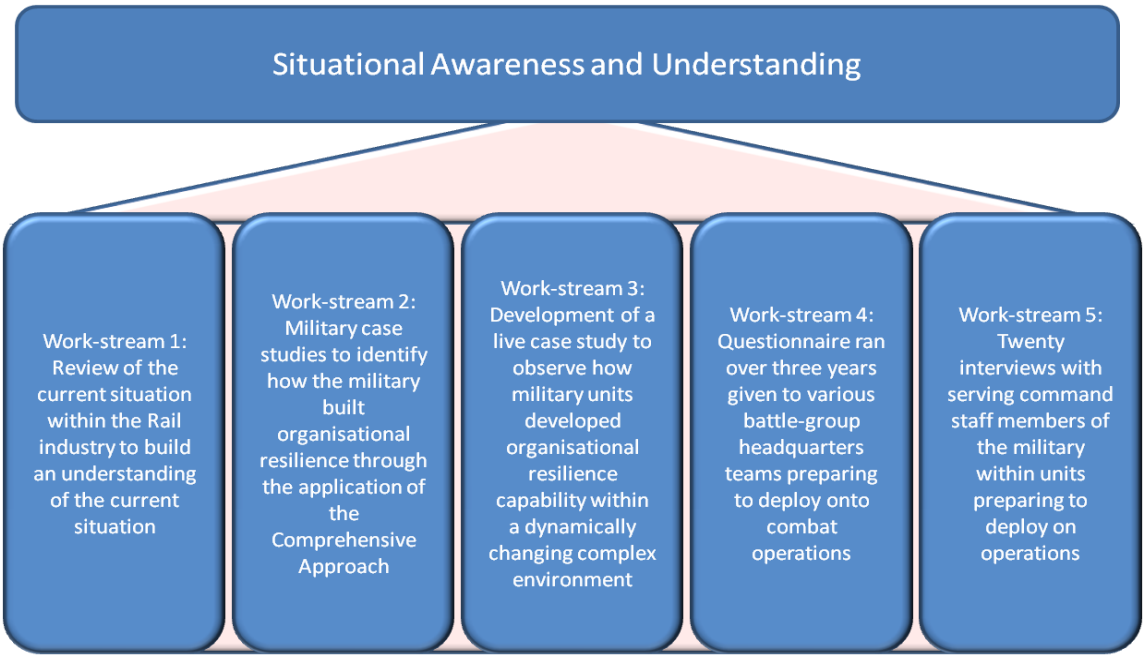


Figure 47: Research work-streams Source: Author

Work-streams 1 and 2 have been answered through the data gathering and analysis conducted in Chapter 5, which investigated the current situation within the rail industry and the review and analysis of the three military case studies. The sections below discuss the findings from each of the data gathering streams and cross references them to answer the remaining research questions that are focussed on the military Organisational Resilience capability.

6.4.1 Interview Results

The military seeks to develop its Organisational Resilience capability through effective preparation for the task, the development of the various teams that were being utilised for the task, and the building of evidence-based decision-making supported through effective intelligence analysis. To identify how well individuals thought they had been trained to adapt and manage complex problems within a dynamic environment, twenty individuals were interviewed during their period at CAST(S). The 20 interviewees

were questioned in line with the question framework.[540] The results were collated[541] and then reviewed against a scoring mechanism, with the scores placed into a table to highlight the key elements.[542] The scoring was conducted to quantify those key personal traits, identified through professional and academic publications that are key in developing a resilience leadership capability. Key phrases were mapped to the various sub-categories of the domains and the relevant personality traits and scored, enabling a comparison across the other traits within the Headquarters Staff.[543] This allowed the development of an overall resilience leader profile, which took into consideration the five key domains and personality traits aligned to each domain, identified by the research findings from the audience group (Figure 48).[544] From the interviews, the key elements regarded as critical to building organisational resilience leadership were:

Figure 48: Resilience Leadership Competency Profile Source: Author

- Effective leadership;
- Development of people; and
- Demonstrating values and standards.

Figure 49 reflects the three lead domains and the components within them that the audience group identified as important to a leader. It shows how the weighting is distributed within these domains. These domains are key to developing the capability to manage a dynamic situation and mobilise the team to manage the situation.

[540]Annex B B1.
[541]Annex B B2 – B21.
[542]Annex C, C1 – C2.
[543]Annex C, C2.
[544]Annex C, C4

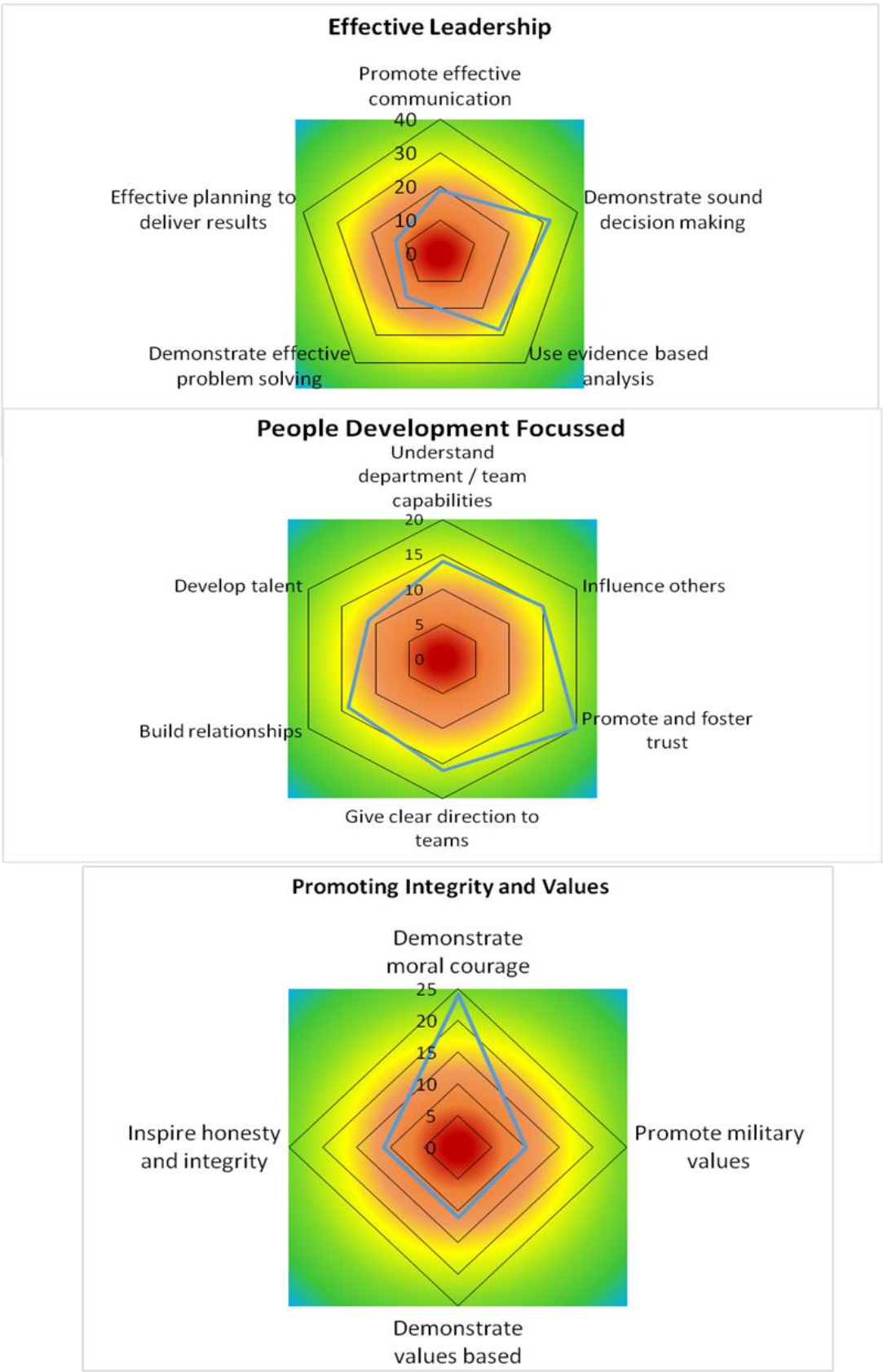


Figure 49: Identified Resilience Leadership Key Traits Source: Author

Building on these observations, the various individual traits were then ranked on the value of the scores that each had obtained across the interviews, arranged in order of perceived importance by the participants[545]. What the analysis of the interviews has established is that in the consideration of those operating within the complex and dynamically changing environment, the key trait of the leadership team managing the complex situation was the ability to demonstrate sound decision-making, often on the back of clear analysis of evidence presented (Figure 49). Supporting this was the need to show the moral courage to make difficult decisions, often under pressure, to enable the diffusion of the situation. The ability to do this within the team relies on the key aspects of trust and clear communication. Therefore, at the top end of the qualities, we see the action elements of crisis management and the traits required to facilitate this aspect of management. In the middle of the qualities are those that focus on maintaining the situation after the initial direction has been given and the decisions made. These are the directions to teams, maintaining capability and understanding the skills of the various team members involved in the tasks at hand. There is also the need to start gathering an understanding of the wider situation and understand what the senior leadership team are seeking. Whereas moral courage and trust are pulled to the forefront of the required personality traits, demonstrating the other values and standards, values-based leadership and innovative thinking sit within the lower third of the identified qualities.

While the “action” traits are required from the outset to respond to an unfolding situation to immediately start to build resilience, the longer-term factors, such as identifying new capabilities and delivering change sit further down in order of importance as they are also longer term. Lateral thinking and innovative responses are also at the lower end, which may initially seem surprising. However, the military is a process driven machine, with processes developed for decision-making, information gathering, warfighting and delivering directions to teams. The issues around culture and politics are based on human interactions and making complex decisions rather than processes and procedures that can be analysed, understood and then amended to suit the required situation. Deeper analysis of the transcripts of the interviews also highlighted that there was a concern regarding the level of knowledge within the senior leadership of the military as to how to address a complex, non-linear campaign against a threat that was based on strategic messaging. At least 60% of the interviewees raised the concern that the military did not invest enough in young officer conceptual development early enough, highlighting the lack of understanding in the frontline leadership (Lieutenant – Captain - Major) on how to effectively apply the Comprehensive Approach.

This was raised in conjunction with the failure to conduct more joint operational training and professional education events with OGDs. When the detailed analysis and comparison of all the factors is conducted, the top five aspects are focussed around decision-making, communication and the building of trust. This is underpinned by the need for the leader to demonstrate moral courage through authentic leadership during disruptive events.

[545]Annex C, C3.

These findings were then cross-referenced with the results from the military and rail industry questionnaires to identify if the issues being discovered in this analysis were also present in the other research work-streams. A detailed analysis of the results against each other was then conducted, comparing each of the qualities against the others, assigning a level of priority from the BG personnel when it comes to the required traits of individuals within a resilience and crisis management position. This enabled the visualisation of how the 20 individuals within an active headquarters, managing numerous disparate issues of various intensity and complexity, scored the importance of each personal trait comparatively against the others. Several interviewees raised the issues regarding the lack of development within the junior officer contingent on resource and people management, as well as feeling ill-prepared to conduct operations within a Comprehensive Approach framework. One of the key topics raised was the ability to plan and execute aggressive kinetic military operations to engage and defeat the enemy, which was the focus of multiple exercises they had conducted, but that there was a limited awareness of influence operations and consent building activities within a population through non-kinetic operations.

From the twenty interviews, the key observations obtained from the review of the domains identified was that the participants identified effective leadership as the lead element to building resilience within an organisation. In their opinion, giving clear direction, decision-making and communicating the requirement was critical to surviving a disruptive event. Behind effective leadership was the development of capability and then the demonstration of values; particularly that of moral courage to make the difficult decisions during disruptive events (Figure 50). The review of the completed questionnaires identified similar issues to those brought out from the interviews. These results are discussed in the following section.

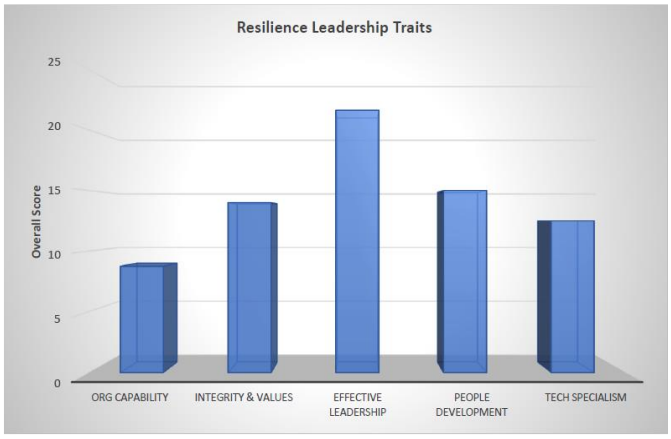


Figure 50: Resilience Leadership Domains Source: Author

6.4.2 Questionnaire Results

Attached at Annex D is the questionnaire framework used in line with the direction given in Chapter 3, and the responses returned against those questions. While the interviews discussed above were conducted across one BG headquarters, the military questionnaire was run over a three-year period to capture the responses from three separate groups of participants, consisting of members from several BG headquarters staff. This was aimed at enabling an objective response to be captured due to the numbers surveyed, helping to reduce the effect of local variances from skewing the overall questionnaire results. The responses from each group of participants were then compiled together into joint tables to enable comparison across the three different audience responses to identify any trends

or exceptions. As the information collected was during the period of transition of 2012 – 2013 for the Afghanistan mission and the embedding a new population-focussed resilience building approach, the focus of the campaign effort moved from insurgent focus to the development of a greater influence and stabilisation capability in preparation for the UK extraction from Afghanistan in 2014. The campaign task moved from one of building security to building resilience across Helmand Province, supporting and maintaining the capability of several civil and government organisations. In this effect, the military was developing Organisational Resilience at a provincial level, thus the participants proved a highly suitable group on which to conduct this research.

Detailed analysis of the questionnaires identified that though the initial training and development of the junior officers was deemed by the audience to be sufficient for the role of leading individuals in combat operations,[546] there was greater concern over the ability of the military to prepare them to manage resources within the wider context.[547] This is a concern, as young officers are expected to manage their command, including multi-million-pound specialised equipment, for between 60 – 80% of their time at the junior command level.[548] The collated research identified that there was a gap, during the research period, in the Officer Education courses from both the RMAS and the Young Officer Special to Arms events that left the young officers feeling ill-prepared to manage the various resources under their command. This can affect the capability of the organisation to perform effectively, as the young officers are tasked with delivering the effect required from the plan. In a business operations context, while the BG Commander is the department head, the young officer is the junior manager responsible for turning plans and strategy into action and results. If the organisation has failed to develop their capability properly, then this provides a strategic gap in resource development and the sustaining of resilience capability.

The level of preparation provided by initial officer training appears to deliver the required level for the operational role within command for the new officer.[549] However, while many would agree that they felt prepared, when the subject is further investigated, the situation is not as clearly defined as was initially proposed, with a significant number feeling exposed when it came to resource management. When analysing the level of professional education, there is over a 10% reduction in those who indicate it effectively prepared them for their first role. The research highlights concern within the participant group over the quality of education delivered by the Army.[550] Interestingly the 2012 Royal Marines, which are Naval forces, demonstrated a higher level of satisfaction with their level of education.

Deeper analysis into the topic of how the junior commander is prepared for their first role exposed certain areas of concern around their preparation and resource management capabilities when

[546]Annex E1, Q1.
[547]Ibid, Q5.
[548]Figure based on the analysis of the data collected during the questionnaire periods, with an average tour length being accepted as 6 months. For example: a newly promoted Captain may have served 3 years (graduate) or 5 years (non-graduate). Having deployed on 2 operational tour of 6 months, this would mean that the young officer would be responsible for resource management for the remaining 66% (graduate) or 80% (non-graduate) of their time in role.
[549]Annex E1, Q1 and Q5.
[550]Ibid, Q5 and Q8.

implementing the Comprehensive Approach. The results showed that the time spent at their initial phase officer training, and the subsequent time given for professional development, is not adequate. Over a third indicated concerns over the lack of professional knowledge and training time when working with OGDs to deliver a Comprehensive Approach to deliver resilience in a conflict environment.[551] Conversely, conducting Joint Services combat operations is well understood.[552] The development of the junior officer is still heavily focussed on the single service capability, with limited development of the wider combined operations with OGDs and NGOs. Given that recent operations have required a combined approach to operations, this lack of experience within the groups tasked to deliver the effect impacts on the delivery capability on the battlefield. Across the surveyed group there was a concern over the conceptual preparation of the individual for the next role that they were being moved into.[553] The review of the collective data for the three separate participant groups identified that, while the Royal Marines audience felt well prepared, this was not reflected within the larger army group reviewed. Both army participant groups reported a greater number of individuals that were concerned over their preparation for their new role than those who indicated they felt fully supported. This concern also increased from 2012 to 2013 by an extra 4%. This period was the time that the military had initiated the management efficiency programme across the three services, seeking to reduce the organisation in line with the SDSR. The Army participants also raised concerns regarding the level of preparation training being delivered prior to operational deployment. In 2013 over 42% indicated that they did not feel properly prepared. This highlighted an increase over the audience in 2012, as well as concerns over the development of the UK units deploying to conduct resilience building activities within the security forces of Helmand Province.

Supporting the quantitative analysis was a qualitative analysis on the current issues impacting the successful delivery of resilience through the Comprehensive Approach. The analysis sought to identify the key themes to inform the CAST(S) facility on ways to improve the exercises to mitigate the concerns of the audience and enhance the development of the Comprehensive Approach capability. The questionnaire sought to build a greater understanding of the rank range, operational combat background, seniority and professional experience of the

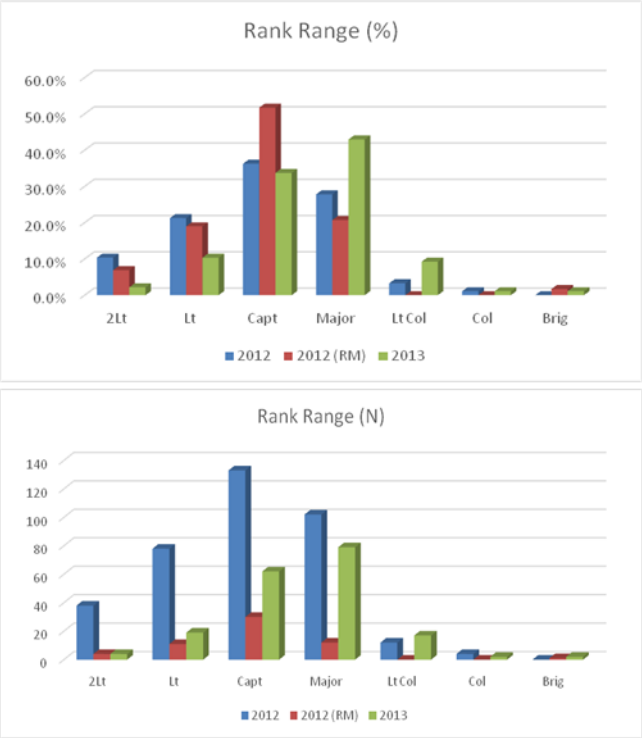


Figure 51: Questionnaire Audience Rank Range Results (%) Source: Author

[551]Ibid, Q20 and Q21.
[552]Ibid, Q22.
[553]Ibid, Q8.

audience groups[554] (Figure 51). Participants were asked to consider what could be done to enhance and re-design the military's approach to education rather than training, focusing on the preparation for the application of the Comprehensive Approach on upcoming operational deployments.

The final question sought to determine how resilience within the workforce was being maintained, looking at how many individuals had received civilian accreditation for the training and education courses completed while serving. This was focussing on the areas of concern raised during the research into how the military supported individuals entering the civilian workplace on completion of their service. The concept being how does the military manage to support its social capital and use ex-service personnel to provide resilience support through either returning as Reservists or selling the military to the next generation. The ability to mobilise the social capital requires initial investment by an organisation. Q26 reported how well the military had invested into the people it was sending onto combat operations.

When the results were analysed across the three separate audiences, they highlighted some interesting trends across the audience, as well as who was being deployed to manage effective resilience operations. Q24 highlighted that within the main participant group of 2012, most respondents were of the Captain rank, which is the first step on the middle management ladder of the army. A captain will have already served approximately 6 years, depending on their profession and have had 18 months invested on their leadership and management development. They would be in senior frontline command roles within sub-units, or specialised technical liaison officers where trust, integrity and an ability to self-motivate and advise others were key skills. Though there were over double the number of respondents in 2013, when compared as a percentage, it was very similar. In contrast, the Royal Marines, in their tight knit BG of 58 positive respondents, displayed a higher proportion of Captains than either of the Army participant groups.

This may be due to two key issues; the size of the respondent group within the Royal Marine BG and the fact that the Royal Marines, being a specialised naval unit, are more comfortable with the concept of Joint Force operations. This concept results in more liaison officers, who are normally of Captain level, being part of the task force. When this finding is then mapped against Q8, Q13 and Q15,[555] the officers highlighted that the level of Professional Military Education (PME) does not fully develop them for the next role they move into, the organisation does not give them enough time to access the education throughout their career, and almost 36 %(2012) and 45%(2013) of the audiences remarked that the level of PME does not provide enough support to their leadership and management development.[556]

[554]Ibid., Q24 -26.
[555]Annex E.
[556]Ibid. Q13.

Another observation that can be witnessed is the change in the makeup of the participant groups. Although the same type of organisation (an operational BG), there is a marked higher level of more senior officers in the 2013 audience. This may be representative of the change in mission for the UK military. In 2012 - 13 it was about stabilisation of the situation within Helmand Province and therefore more focus on combat and interdiction operations to defeat the insurgents. In 2013 - 14 the mission had changed; the UK was withdrawing from the region and developing Afghanistan security forces resilience was the way out; therefore, more senior liaison officers, with previous experience in force development and resilience building endeavours, were present. This would also be consistent with the previous observation that the skill sets required were not being delivered effectively to the junior officer cohort and therefore a more senior rank was required for the task.

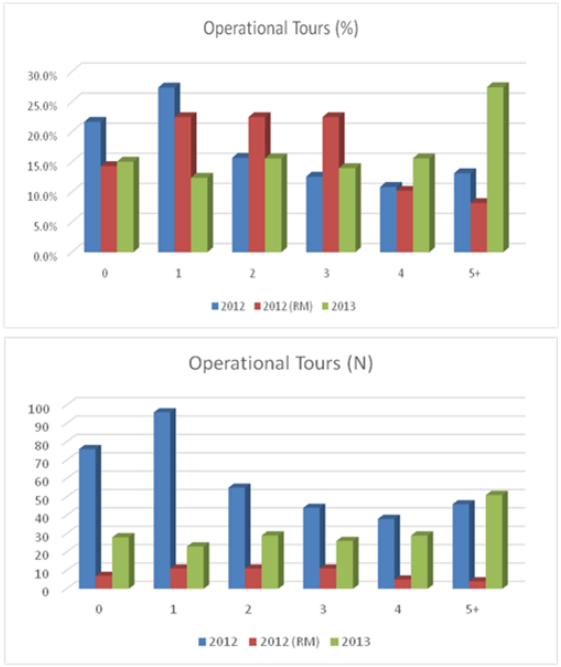
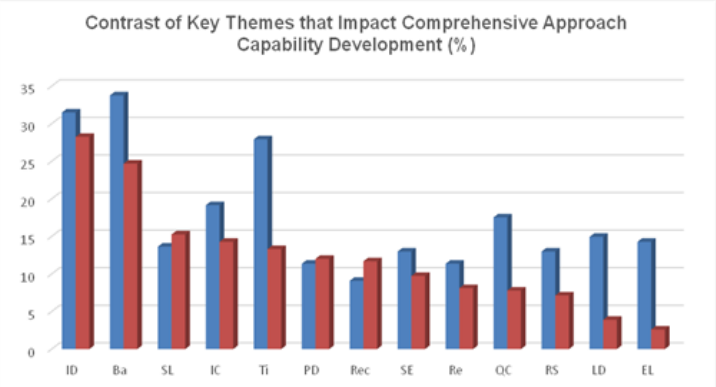


Figure 52: Questionnaire Operational Tour Results (%) and (n). Source: Author

This knowledge does not only come with professional education and development. A significant amount of capability development is also obtained through exercising and operational experience. Figure 53 contrasts the level of operational tour experience of each of the participant groups in numbers and percentage of the deploying staff. When the participants are compared the experience of the deploying organisation is far greater within the 2013 deploying organisations. This is also reflective of the previous observation that a more senior cadre cartel of officers was being deployed to the combat zone.

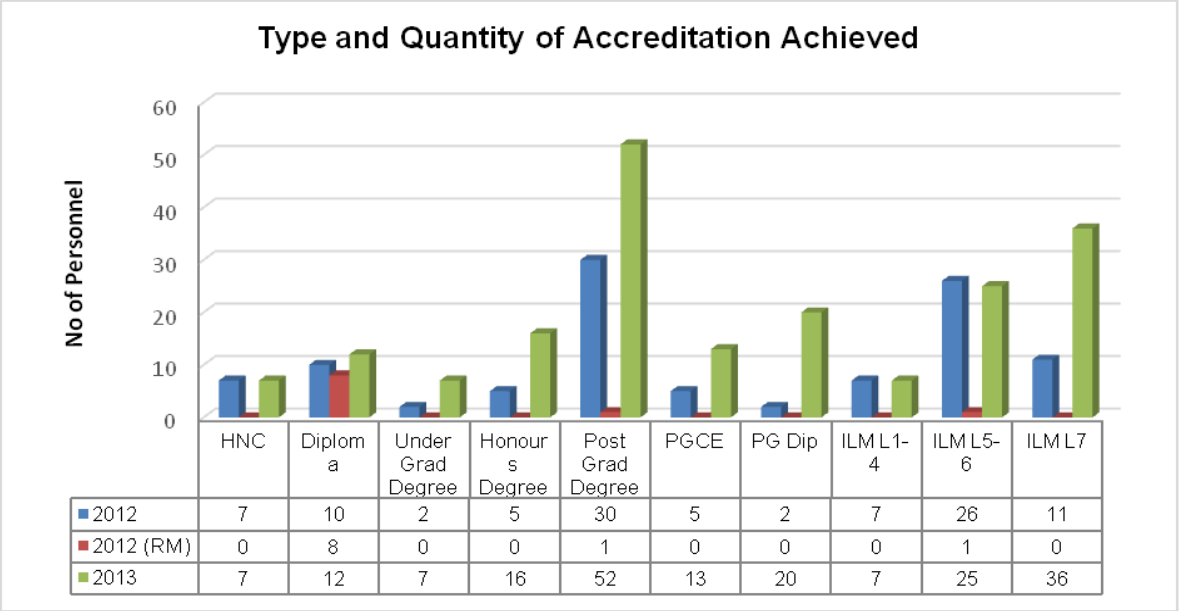


Field Ref	Field	2012	2013
ID	Wider Theme Improvements to delivery	31	28
Ba	Wider Theme Barriers	34	25
SL	Strategic Leadership	14	15
IC	Wider Theme Improvements to Content	19	14
Ti	Time	28	13
PD	Focus more on Personal Development	11	12
Rec	Wider Theme Recognition	9	12
SE	Wider Theme Stakeholder Engagement	13	10
Re	Resources	11	8
QC	Wider theme Poor Quality courses	18	8
RS	Training not Role Specific	13	7
LD	Wider Theme Location of Delivery	15	4
EL	E-Learing DLP does not work	14	3

Figure 53: Themes That Impact Delivery of a Comprehensive Approach. Source: Author

Further investigation into the written responses to the qualitative questions,

revealed several themes that were identified during the codifying process. These were broken down into overarching themes which impacted on the delivery of leadership development and the development of staff capability to deliver an effective Comprehensive Approach methodology to resilience operations. These themes were captured and compared over the three participant groups, but for a balanced comparison only the army groups were used from 2012 and 2013.



	HNC	Diploma	Under Grad Degree	Honours Degree	Post Grad Degree	PGCE	PG Dip	ILM L1-4	ILM L5-6	ILM L7
2012	7	10	2	5	30	5	2	7	26	11
2012 (RM)	0	8	0	0	1	0	0	0	1	0
2013	7	12	7	16	52	13	20	7	25	36

Figure 54: Volume of Accreditation Activities. Source: Author

During the observation period, the Army introduced its management efficiency programme, seeking to reduce its numbers from 101,000 to 82,000 under the Army 2020 restructure programme. The impact of this is clearly seen within the comparison of the results. In 2012 the focus was on the quality of training and preparation for operational deployment. In 2013 the emphasis had shifted with an increase in concerns over strategic leadership and how the military was preparing individuals to transition out of service and into civilian life. A deeper analysis of the personal development support of individuals across the three participant groups by the military also supports the initial findings. By analysing those who had sought professional accreditation of their work, there is a distinct difference in the number of accreditation events being achieved, as well as the level of accreditation. This demonstrates a shift in thinking (Figure 54); individuals in 2013, due to the restructure, were more focussed on demonstrating their capability to a civilian employer and preparing themselves for the transit out of service life. This was also underpinned with the launch of the Army Skills Programme, which sought to push civilian accreditation in a bid to align military skills with required civilian employment skills.

For the rail industry, the review of the questionnaire responses identified several areas of concern in relation to staff capability, organisational structure and the effectiveness of its resilience capability when

faced with a disruptive event. Initial discussions with the ATOC the ORR and RAIB reports identified that there was an embryonic approach to Business Continuity within the rail industry in 2013 - 2014, with several organisations beginning to explore the capability. This was also supported with the evidence gathered during the initial review of the current situation within Network Rail, which is attached in the questionnaire answers at Annex E. The responses to Questions 1 through 3 demonstrate the low level of resilience education that exists within the organisation. Those questioned across both functions within the organisation had the demographic spread shown in Figure 55, which highlights that both questionnaires cut across the hierarchical management framework of both functions within the company.

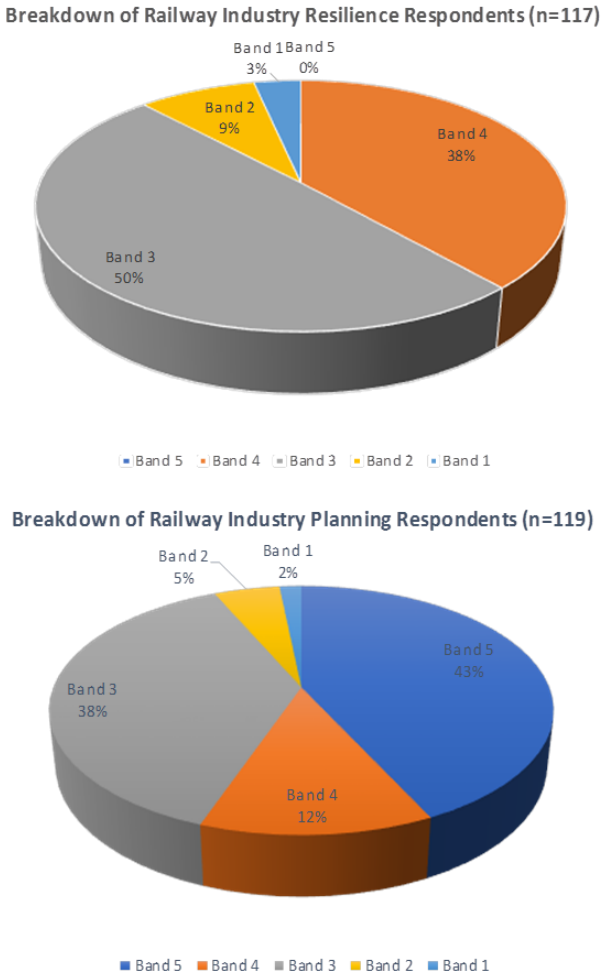


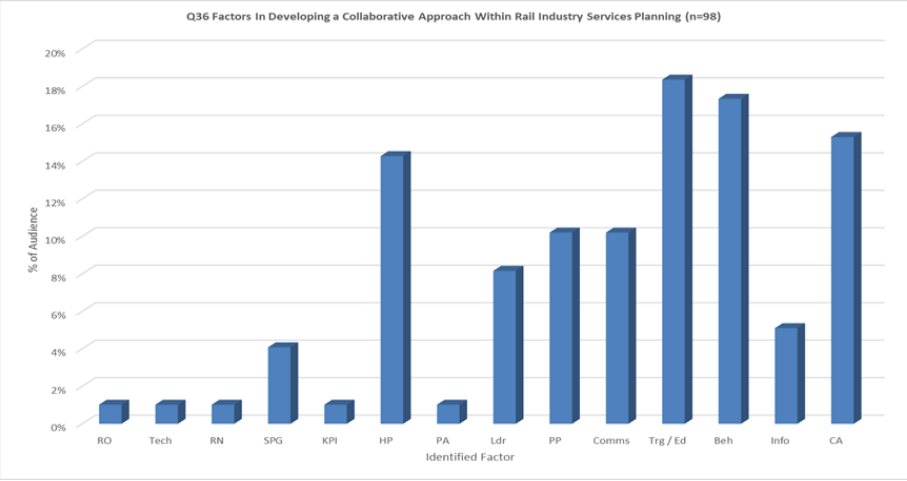
Figure 55: Demographic Spread of Railway Audiences. Source: Author

The 130 respondents to the Operations Department questionnaire were drawn from across the management layers of the department. The aim was to capture, by using a cross-section, a more representative range of opinions, thereby delivering a fair interpretation of the actual environment within the company. The majority are based within the junior (Band 4) and middle management levels (Bands 3 & 2). Band 4 represents the team and specialists level of management, while Band 3 is more the Local manager / project manager layer within the organisation, focussing on the tactical level. Band 2 and Band 1 are the layers of management that focus on strategic leadership and decision-making within the department.

Within the strategic planning team respondents (n=120), the layers of seniority were similar. The demographics show the train planners (Band 5) and the team managers (Band 3). Supporting the managers are the Team specialists, (Band 4), experts within the planning domain. Band 2 personnel are the Route team managers, which may encompass two or more planning teams, while the band 1 managers are the strategic leaders of the department. There were approximately 550 individuals within the department during the research phase.

The full responses to both questionnaires run across the rail industry are located at Annex E. The questionnaire that was focussed on resilience capability reflects the concern raised regarding the level of management capability and leadership within the delivery of resilience, with concerns over the level of training, education and resourcing of the teams. Within the Strategic Planning function, there is concern over the level of staff development and management support, as well as the indication that individuals feel their teams are not properly resourced. Within this area it is also noted that the staff feel the company does not understand the needs of the rail industry, managers are not held accountable for their decisions, and the rail industry is not working in an effective and collaborative manner. This would seem to indicate that there were limited levels of communication and engagement with key stakeholders, poor investment and retention of staff, limited understanding of the level of risk the organisation was operating at, and a limited management of talent within the departments. These elements are people focussed but critical in building and maintaining a resilience capability within an organisation, which can then be enabled and enhanced through technology.

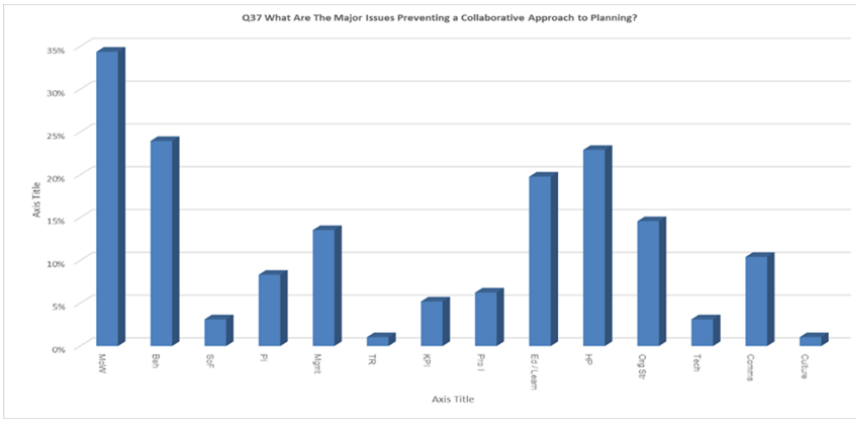
Working with the questionnaire responses, the next steps were to pull together what factors they thought would enable the development of an effective industry, Figure 56 demonstrates the key factors that were presented. The top three they suggested were: training and education; improved behaviours; and investing in a Collaborative Approach.



Factor	Code	% of Audience
Address Re-org issues	RO	1%
Invest in Technology	Tech	1%
Re-nationalisation	RN	1%
Single Industry Planning Group	SPG	4%
Reduce KPI Driven mentality	KPI	1%
Invest in Holistic Planning practices	HP	14%
Address Planning Ability issues	PA	1%
Improve Leadership issues	Ldr	8%
Address Process Problems	PP	10%
Invest in better Communication frameworks	Comms	10%
Improve Training / Education	Trg / Ed	18%
Develop Better Behaviours	Beh	17%
Better Information Management	Info	5%
Improve Collaborative Approach	CA	15%

Figure 56: Building an effective collaborative industry. Source: Author

Taking this a step further, the strategic planning questionnaire asked the respondents, within their operating environment, what issues they were currently witnessing which were impacting on the development of the desired collaborative approach across the industry. Figure 57 reflects their responses.



Factor	Code	% of Audience
Conflicting Methods of Working	MoW	34%
Poor Behaviours	Beh	24%
Strategic Operating Framework Issues	SoF	3%
Political Interference	PI	8%
Weak / Poor Management	Mgmt	14%
Limited Team Resilience	TR	1%
KPI Driven Approach	KPI	5%
Process Issues	Pro I	6%
Staff Education / Learning	Ed / Learn	20%
Lack of Holistic Planning Approach	HP	23%
Organisational structure	Org Str	15%
Lack of Investment in Technology	Tech	3%
Poor Communication Frameworks	Comms	10%
No defined culture	Culture	1%

Figure 57: Issues Impacting on Building a Collaborative Approach. Source: Author

The three main elements raised by the respondents were: The methods of working; staff behaviours; and a lack of a holistic planning approach. When viewed with the rest of the answers to the questionnaire within the Strategic Planning function, which raised issues around management development, team suitability and resourcing and issues around stakeholder engagement, it is clear why there were such issues identified that were impacting on the collaborative approach and effective planning of the rail network. Based upon the findings of the research into rail incidents investigated by the ORR and RAIB identified several key themes identified that were impacting on the organisation's resilience. The table below looks at these themes, observations and impact. It also identifies what element of the ORM3 this theme would be attributable to.[557]

Ser	Theme	Observation	Impact.	ORM3 component
1	Incident Management	Industry failed to manage the situation effectively and did not prioritise the customer, with many self-evacuating onto the track. Several passengers suffering from minor cold and non-freezing injuries.	Corporate Social Responsibility; Reputational; Financial; Safety Performance.	Staff development, Situational awareness, Risk management, Adaptive decision making
2	Situational Awareness	Network Rail team failed to become aware of the wider unfolding crisis and did not react accordingly.	Performance; Reputational	Situational awareness Risk management Silo mentality management Communications Knowledge collection
3	Inadequate Command and Control	Rail industry response was lacking in knowledge, capability or experience of this sort of incident.	Performance; Reputational; Resource.	Situational awareness Risk management Silo mentality management Communications Staff development Exercises
4	Inadequate Communications	The communications framework and procedures, across many dimensions, were inadequate to support effective incident management.	Performance Response capability Reputational	Connectivity awareness Communications Exercises Roles & responsibilities Risk management
5	Passenger Evacuation drills	Industry procedures were not followed correctly, or were not in place, for such an incident.	Corporate Social Responsibility; Reputational; Financial; Performance;	Situational awareness Risk management Silo mentality management Communications Staff development

[557]RAIB, `Detrainment of passengers onto electrically live track near Peckham Rye Station`, RAIB Report 16/2018, Derby, UK, 2018; RAIB, `Self-Detrainment Of Passengers Onto Lines That Were Still Open To Traffic And Electrically Live At Lewisham', South-East London, RAIB Report 16/2018, Derby, UK, 2018.

			Response capability Safety	Exercises Roles & responsibilities
6	Poor decision making	Lack of use of all information channels available to build situational awareness and effective decisions for actions required.	Performance; Reputational	Situational awareness Risk management Silo mentality management Communications Exercises
7	Poor communication planning	Little consideration given on how to communicate to passengers when faced with a large-scale, multi-train situation.	Performance; Reputational Resource.	Connectivity awareness Communications Exercises Roles and responsibilities Risk management
8	Collaborative planning	Actions by control, signalling and driving functions contributed to the situation through lack of situational awareness.	Performance; Reputational Resource	Situational awareness Risk management Silo mentality Communications Staff development Exercises
9	Lack of passenger welfare	Industry focussed on removing the stranded vehicles, rather than duty of care to stranded passengers, resulting in discomfort of several hundred passengers and eventual forced self-evacuation, putting passengers at risk of death through electrification.	Performance; Reputational Resource Safety	Culture Situational awareness Risk management Silo mentality Communications Staff development Exercises Corporate Social Responsibility Recovery Priorities

Table 18: Impact of Poor Resilience Implementation During a Major Rail Incident. Source: RAIB

6.4.3 Previous Exercise Reviews

To enable the observation of military personnel within a complex environment, it was key to develop a situation where the individuals and the team could function utilising their skills, knowledge and capability without having an initial awareness of the situation they were about to enter. The key element of the case study was to identify within the leadership group how, when faced with a complex problem requiring the application of a cross discipline implementation strategy, to deliver Comprehensive Approach based activities to obtain success. The case study exercise was developed, informed by the information being collected by the researcher during research interviews and observation of training exercises. Utilising the lessons observed from the two exercises discussed below, the Live Case study was developed.

To ensure there was little disruption to the organisation and to negate the Hawthorne Effect, the decision was taken to observe the planning and mission execution serials based on military tasks already being used to train individuals for operational deployment. Two training exercises were chosen for observation based on their structure and similar requirements to that of the case study, with the findings shown in Table 19. Exercise *Eagle's Claw* and Exercise *Red Wolf* were developed to train the military staff at the BG Headquarter level, aimed at developing the planning capability to deliver an effective operational plan within a Comprehensive Approach framework to address a complex environment based on the Mosaic of Conflict model. [558]

[558] Ministry of Defence JDP 05: Shaping a Stable World: The Military Contribution, Defence Concepts and Doctrine Centre, UK Defence Academy, Shrivenham, 2016. P.67; MoD, Strategic Trends Programme: Future Character of Conflict, 2009; MoD ADP Operations, 2010.

Ser	Exercise Name	Threat Type	Geographic Location	Exercise Construct	Limitations
1	Exercise Eagle's Claw	The exercise introduced a hybrid threat, based on the generic enemy model created for planning exercise events.	The geography was based on the UK, with the country broken into 4 separate geographical regions. These regions, called Nordland, Blueland, Redland and Eastland sought to replicate a complex political environment.	Redland was the aggressor, having launched a border incursion into Blueland. The audience were there as part of a UK Brigade deployed in a NATO multi-national formation. The exercise ran over 2 days and was successful in its aim in introducing planning cycles and practices to the headquarters staff. It developed problem-solving, decision-making and evidence-based analysis under pressure.	While the concept provided context, the unreal setting detracted from the realism, with the generic enemy being fit for purpose, but not credible. There was little in the way of a political higher story to help build the complexity of the situation; this resulted in little consideration being given to non-military options or Comprehensive Approach considerations.
2	Exercise Red Wolf	The exercise introduced a hybrid threat, modelled on an Islamic fundamentalist threat, modelled on the Taleban / Al Qaeda framework	This situation was based in the Middle East with the exercise narrative built around the audience being part of a UK rapid reaction deployment in support of a wider NATO action to deter the threat.	The exercise sought to develop the relevant planning processes and intelligence gathering activities to enable evidence-based analysis and complex event management. It aimed to build greater cultural awareness, problem-solving and decision-making practices. The exercise was planned to run over a two-day period, focussed on the building of team capability.	The audience identified key limitations to the exercise, the mapping used was very limited, preventing little ground analysis. There was little in the way of population information to conduct targeted analysis; there was little political high-level story to build greater awareness of the complex environment. Limited in the way of other agencies inter-action, which in turn detracted from the need to create a Comprehensive Approach answer to the problem.

Table 19: Exercise Threat Observations

From observing both Exercise *Red Wolf* and Exercise *Eagle's Claw*, several issues that impacted on the ability for the various audiences to fully embark on a Comprehensive Approach planning exercise were identified. The review of both these exercises identified that though they had been developed to build a greater awareness of planning military activities against a hybrid threat within the framework of the Comprehensive Approach, the focus was on the military action, rather than the complexity of the environment. The limited consideration of non-military activities impacted on building an understanding of the Comprehensive Approach or the need to create a people centric approach to the planning. It also continued to build the incorrect premise of hybrid warfare being a complicated, rather than complex, operating environment.

Ser	Exercise Name	Limitations	Learning Impact	Impacted Domain
1	Red Wolf	The mapping being used for one of the exercises was not detailed enough to enable a clear understanding of the ground or terrain.	This prevented detailed planning activities and urban operations due to lack of clarity and detailed ground analysis.	Planning Evidence based analysis
2	Red Wolf Eagle's Claw	While the detail around the exercise scenario and enemy threat was substantial on both exercises, there was limited information on the cultural dispositions of the population, tribal allegiances, political issues or the local elder council frameworks	This limited the ability for non-military actions and planning events to be embarked on in detail, impacting on the ability to plan wider inter-agency tasks.	Inter-agency planning Leadership Campaign management Decision-making
3	Red Wolf Eagle's Claw	There was limited information on the infrastructure, the commercial impact, organisational structures and its condition.	Unable to plan Comprehensive Approach activities which seek to build consent and support in the population. COIN operational success relies on the embarkation of non-military activities that add value to the community.	Inter-agency planning Leadership Campaign management Decision-making
4	Red Wolf	There was little scope given to exercise events to "grow"; to allow	The exercise had a list of events to cover and once the desired activity	Inter-agency planning

	Eagle's Claw	the event to react and develop according to how the audience responded to the issue.	/ response was witnessed, the serial was closed, preventing the audience the ability to learn how to respond to wicked problems and understand the wider implications of their actions on a military, political and social plane.	Leadership Campaign management Decision-making Adaptive planning Consequence management
5	Eagle's Claw	The generic enemy model for the exercise was fit for the purpose of the exercise team but the operational doctrine, combat approach and responses were not credible.	The impact on the quality of the complex training, with the Headquarters staff not being tested when dealing with complex social-political situations being intermingled with hostile forces' rhetoric and wider combat operations.	Campaign management Decision-making Adaptive planning Consequence management
6	Red Wolf Eagle's Claw	The audience spent the first part of the exercise reading the exercise scenario, building situational awareness, pulling together various maps and identifying the required forms required to conduct the exercise.	Planning and staff development time wasted due to building simple situational awareness. No testing of pre-deployment, intelligence sharing activities within the unit prior to deployment.	Planning Evidence based analysis Intelligence sharing Campaign management Leadership Adaptive re-organisation for task

Table 20: Learning Observations From Exercise Reviews. Source: Author

These observations were used to inform the development of the "live Case Study" exercise. Through constant review of the credibility and authenticity of these events, dynamic situations were created for the participating individuals, with their responses being based on actual practices and procedures at the time, rather than preconceived information enabling individuals to prepare for the event. These training events looked at the ability of the individuals and the team to react to unfolding tactical, operational and strategic events, how they reacted with the environment, collaborated with other individuals, as well as the social interaction between the individuals and various groups during periods of intense pressure, limited information and continued threat to the organisation. The exercise framework was developed to incorporate events that would drive critical decision-making, contingency planning, communication and the building of situational awareness skills within individuals, though success could only be achieved through teamwork, problem solving and information sharing.

6.4.4 Live Case Study Results

Having identified the key areas of concern that impacted on the capability development, the use of live exercise scenarios was aimed at observing the capability in action, managing complex disruptive events, and assist in the understanding of how the military units built and maintained resilience within a dynamic and complex operating environment. As part of the observation, both groups conducted a self-enforced continuous improvement process, supported by the members of the Directing Staff at the CAST(S) facility. These members offered impartial observation, being able to benchmark the two organisations against each other and other units that had gone through the event previously, capturing the evidence in a detailed observation report.

The case studies identified the importance of building a clear understanding of the operating environment, the complexity of the actors and relationships within that environment. The need to develop situational awareness was conducted early, enabling the team to identify potential intelligence

gaps and task constraints. This allows the adaptation of the organisation to deliver the required operational structure to respond to the environment and mission essential tasks. The reports, through the performance grading system,[559] demonstrated that there was a limited capability within the headquarters to deliver an effective Comprehensive Approach to resilience operations, which was then developed through the support given by the observation teams through a continuous improvement framework.

On completion of the observations, the results were scored against the criteria. This enabled the comparison of the activities of the BG headquarters against proposed industry requirements for building resilience. The performance of the BG was mapped against the activities of McManus' framework, in line with section 3.10.3. The framework (Figure 58) is provided for reference. By using this approach, a comparison of how the organisations performed in each of the live case study events was possible, as well as an identification of areas of change / performance enhancement through the review and lessons learnt process. Attached are the findings for the four events mapped into the framework; two for BG 1 and two for BG 2.[560] The framework has been completed using the scoring system discussed in section 3.10.3, with organisational resilience profiles also completed to enable an accurate comparison to be conducted.

MoD Plan- / McManus	Preparation	Information & Intelligence	Command, Control and Leadership	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	War Gaming	Issuing of Orders	Orders Delivery	Plan refinement	Battle Execution
Degree of Situation-al Awareness															
Identification and Management of Key Vulnerabilities															
Degree of Adaptive Capacity															

Figure 58: McManus / Military Planning Framework. Source McManus

The detailed analysis of the BG demonstrated the importance of leadership, flexibility and the capability to conduct a lessons learned activity to adapt to a complex and dynamically changing disruptive event.[561] Figure 59 shows the resilience profile of BG 1 using the original McManus model, giving a clear indication of the benefit achieved through the experiential learning and the after-action review events with the instructional staff. The adjustments made by the leadership team for the second series of complex tasks show a higher level of resilience capability. Figure 60 shows the results of BG 2 in a same format.

[559]Annex F
[560]Ibid.
[561]Ibid.

Figure 59: Resilience profile of Battlegroup 1, before and after. Source Author

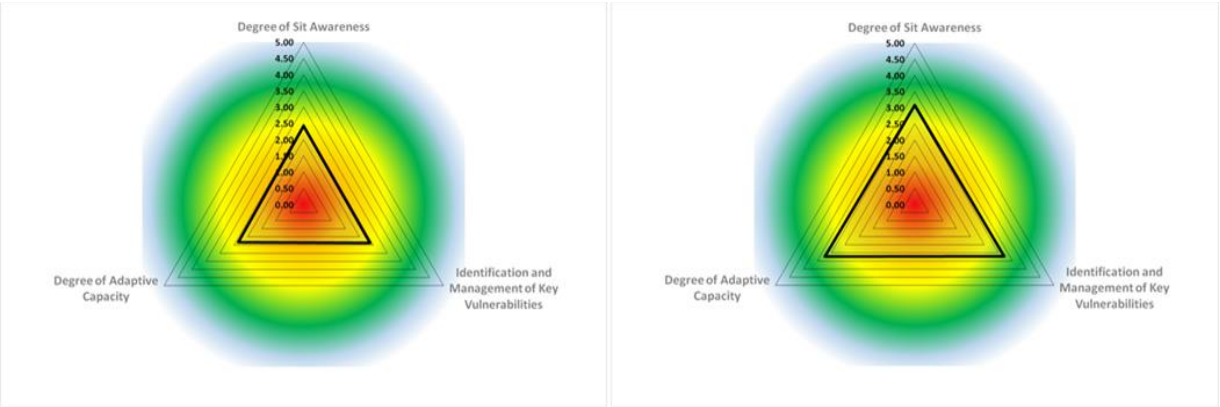


Figure 60: Resilience profile of Battlegroup 2, before and after. Source Author

A review of the diagrams of both BGs show an increase in resilience capability post the lessons learnt review and the ability to reflect on their current operational approach and amend it based on the feedback received. Using McManus's framework, it is possible to show the actual change to the profiles of both organisations. Each of the three domains are designed with the higher score towards the outer edge; the larger the triangle, the greater the resilience profile of the organisation. Building on this, the detailed analysis of each component of McManus' framework is also reviewed to determine whether the more detailed reporting provides a better model for observing the resilience profile of an organisation. By being able to drill deeper into the resilience profile, it provides a framework that can be used by an organisation not only to build a resilience capability, but also act as an assurance and bench-marking tool across similar industry businesses.

Figure 61 demonstrates this for BG 1, while Figure 62 demonstrates this for BG 2:

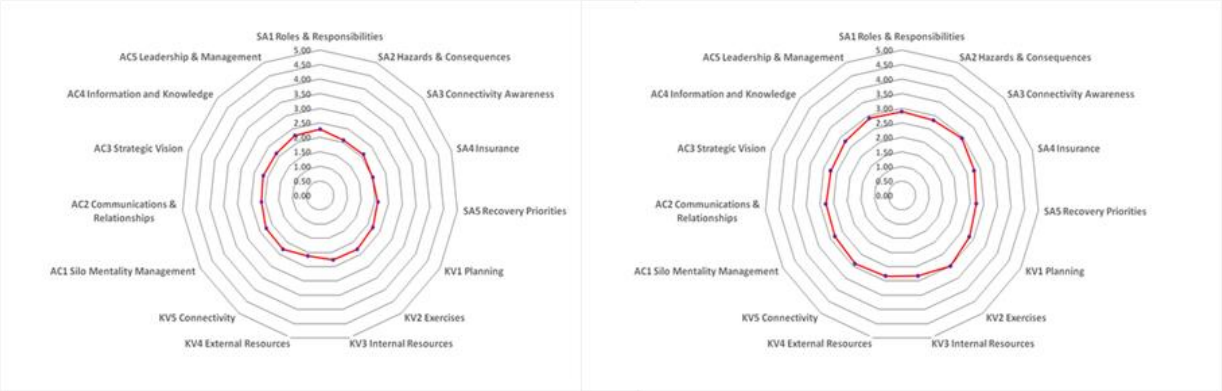


Figure 61: Battle-Group 1 Resilience Profile Before and After Review. Source: Author

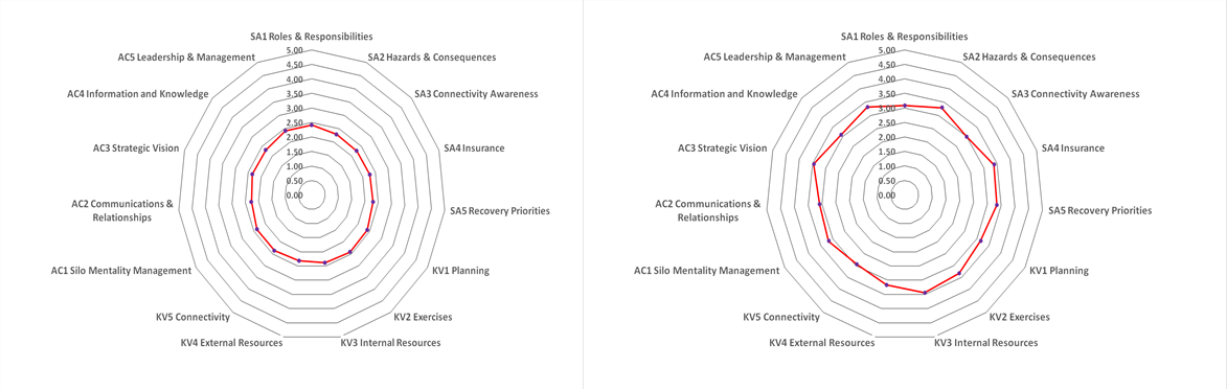


Figure 62: Battle-Group 2 Resilience Profile Before and After Review. Source: Author

To obtain a greater understanding of the impact of the lessons learnt and process review, the next step was to map the individual components of each of the domains. These scores are obtained from changing the grading given in the organisational observation reports and allocated a representative numerical value. This value is then used to score the individual component against the other components. This provided a scoring mechanism for each organisation on its situation awareness, keystone vulnerability and adaptive capacity, varying from very low to very high[562]. Figure 61 presents the score of each component and details the improvement from the first and second exercise events, for BG 1. The comparison provides a visual representation of the impact of the lessons learnt and reflection on the actions of the BG, with the subsequent organisational learning providing a larger resilience profile on the second model. The process was also conducted for BG 2 to cross-check that the process was functioning correctly and to provide a second independent observation. The same process was conducted, with Figure 62 graphically demonstrating the initial level of capability and reflecting how the lessons review and subsequent adaptive capability of the headquarters enabled a significant change to the resilience profile.

[562]See Annex F for detailed scoring framework

The application of the McManus framework enabled the investigation to be conducted into the level of organisational resilience that is demonstrated within the military units as they plan, conduct and recover for disruptive events. Though the analysis was conducted in the virtual environment, with the observation of real time activities within the combat zone viewed as introducing a high-risk approach to information gathering, the activities, pressures and complexities experienced by the command team were similar. Though the risk of actual casualties was not present, the increased tempo of operations, the high level of complexity and the detailed scrutiny of every decision made replicated a high-level of operational pressure.

Based on the results of the various work-streams, discussed in detail in this chapter, and building on the research of McManus and Stephenson, the base components for the ORM3 was developed using the BG reports to demonstrate its effectiveness at promoting a greater level of granularity and awareness when it comes to understanding the level of resilience that exists within an organisation, and the various complexities that exist in attempting to understand the shortfalls and potential outcomes.

As part of the research framework, this thesis reviewed numerous texts, business publications and research papers. Based on the observations and the results from the various research activities, this research developed several additional factors that it proposes should be incorporated into the McManus / Stephenson Organisational Resilience framework, which were incorporated for consideration in the design phase of the ORM3 framework. This research also proposes a conceptual model, aligned to the framework, to help demonstrate how the various elements are interlinked. Chapters 7 and 8 discuss the design and development of the new maturity model identified through this research.

6.5 SUMMARY

The analysis of the information from the questionnaires and the codifying process from the organisations enabled the identification of key areas of resilience building capabilities. By cross-referencing the findings of the railway and the military case studies in Chapter 5, it was clear that areas of concern within both organisations that focussed on Organisational Resilience were highlighted. The key aspects of effective strategic leadership, managing complex disruptions and the development of an effective culture were all critical to building a resilience capability. For the military, these issues, when cross-referenced with the three case studies, highlighted core elements that were needed to promote a successful approach to building resilience capability within organisations and at national level. The use of the political-military framework was chosen as these government organisations are normally the framework elements of a national resilience structure. Their capability reflects the readiness of the national resilience groups to respond to a national crisis. This element of the thesis sought to build on the components that support the operational development of Organisational Resilience once the strategic framework of culture, organisational vision and purpose, and the leadership framework is in place. This investigative work was conducted along five independent research streams, enabling detailed focus on the various elements.

The questionnaires and interviews identified that resilience capability is not inherent. There is a need to build and maintain skills throughout the organisation to enable it to respond effectively. The questionnaires brought to the surface issues around staff conceptual development and exercising with other resilience-based organisations. This impacted on the level of knowledge of other organisations and potential issues / working practices that were required in the combat zone. The interviews also teased out the importance of evidence-based analysis to support decision-making and delivering leadership and guidance to the team. Moral courage was also high on the list, demonstrating that in disruptive events, individuals understand the importance of decisions being made, and that some may be difficult choices. The leader is expected to have the moral courage to make the tough call on what needs to happen, based on the evidence available and unfolding situation.

Using the work of McManus and Stephenson to build the assessment framework of the observed case studies, it allowed for a review of the activities of the BGs, and a check of the resilience frameworks. Whereas McManus did not have a core element, Stephenson had added this to the original framework, though it did not fully identify the elements that were being highlighted in the organisations observed. The observations also highlighted that there were several key groupings of activity within the BG headquarters staff. All elements required alignment to the vision, supported by a military culture and the dynamic mission command leadership methodology. Across the headquarters, elements where broken down into key operational elements to maintain a functioning organisation as it managed several disruptive events within a dynamically changing environment. The following chapter will look at how the observations of the BGs, supported by the evidence of the interviews and questionnaires across both organisations, have resulted in the development of the ORM3 framework to provide a more detailed benchmarking tool, aligned to a conceptual model.

Having clearly identified the various issues and concerns around the current level of resilience capability and awareness within the organisations, there is a need to build a framework to enable the relevant individuals within both organisations to enhance their organisation’s capability. However, this can only occur if the senior leadership teams buy in to the need to develop an Organisational Resilience culture and supporting framework within their business.

Chapter 7: Designing the Framework.

7.1 INTRODUCTION

The previous chapters of this thesis have explored and documented the current situation within the GB rail industry regarding the implementation of an organisational resilience culture. The review of the military as an organisation that is seen as having a high level of resilience capability, often operating in highly dynamic, congested and often highly complex environments, also identified areas of weakness when it came to sustaining a resilience culture, with critical concerns over the ability to apply and embed lessons. In the last decade, there has been the identification of several concerns over the academic establishment's approach to building and maintaining resilience at a staff, student, faculty and establishment level and supporting the development of a body of knowledge.[563] This would raise severe concerns within the business sector, when those regarded as the leaders in industry thinking often find it difficult to manage their own sector.

Given that the academic sector is also demonstrating limited levels of resilience within several of their establishments, an inability to provide a forward thinking approach to IT and finance management, and a concerning limitation to the support to their students, there is concern within business sectors that the level of understanding within the academic world is more restrictive than that of the business world.[564] This can be witnessed by the sparse volume of high-grade academic research in the subject area of Organisational Resilience within the UK. Most of the work is still being driven through the various businesses and certificate organisations aligned to the operational delivery of a training capability, rather than academic research. Until there is a clear understanding of the Organisational Resilience requirement, the framework, impacts and a detailed body of knowledge, industry will seek to mitigate this through action research, utilising commercially painful lessons learnt and experiential learning by individuals and organisations.

Within this element of the thesis, the concept of the ORM3 framework will be clearly articulated, drawing upon the literature review, though as previously identified in both Chapter 2 and Chapter 4, the lack of a body of academic knowledge and the limited level of trust between the business and academic spheres demonstrate the need for academics, and the establishments they operate within, to begin to understand the concept at a more comprehensive level. This lack of clear understanding of how to build and sustain a resilience culture was evident in the evidence collected through the questionnaires that were returned from railway personnel, as well as the reviewed literature. The suggestion that individuals should have the cognitive flexibility and readiness to be able to 'think on their feet' and react to the

[563]Day, C., Edwards, A., Griffiths A and Gu Q., `Beyond Survival - Teachers and Resilience, Economic and Social Research Council Report, University of Nottingham, UK, 2011; McIntosh E. and Shaw J., Student Resilience: Exploring the Positive case for Resilience, Unit Students, Bristol, 2017. Available at www.unite-group.co.uk; Baik, C., Larcombe W. and Brooker A., How Universities Can Enhance Student Mental Wellbeing: The Student Perspective, Higher Education Research and Development, Routledge, Taylor and Francis Group, London, Volume 38, Issue 4, pp 674 – 687, 2019.

[564]Redscan Report, `The State of Cyber Security Across UK Universities`, Redscan Cyber Security Limited, London, UK, 2020; Bolton P., Higher Education Funding in England, house of Commons Briefing Paper Number 7393, House of Commons Library, 2019, available at www.parliament.uk/commons-library_intranet.parliament.uk/commons-library_papers@parliament.uk; Cavandish C., Universities are Pleading for a Bailout to Paper Over Their Failures, Financial Times Report, April 2020, available at https://www.ft.com/content/7be4f44e-7582-11ea-95fe-fcd274e920ca; Baik, C., Larcombe W. and Brooker A., How Universities Can Enhance Student Mental Wellbeing: The Student Perspective, 2019.

dynamic, unfolding situation in front of them was challenged. Personnel proposed that the current situation was working, so why is there a need for it to be changed. This research identified that training, and development of a set of procedures and practices, would enable an individual to be better prepared, in certain circumstances, to react quickly, more effectively and obtain a better chance of optimal decision-making. It was also clear from the numerous strategic reviews and RAIB reports that the current methodology was flawed. The lack of a strategic business continuity framework was also a legislative non-compliance as a Category 2 responder.

The development of a common Organisational Resilience Model for utilisation within the management of a disruptive event would provide a means to address these issues, reducing the detrimental effect of an incident and assisting with effective decision-making, which in turn would reduce cost, increase capability and develop a collaborative working approach to future incidents. Previous work has clearly identified that there is a need for organisational resilience to be more focussed on the workforce, rather than processes and organisational structures.[565] The BSI framework provides a strategic guidance based on themes, rather than a clear roadmap on how to develop Organisational Resilience (Figure 63). In times of disturbance the ability of the workforce to adjust and re-align to the situation is what provides an organisation with its agility. Observation of the military demonstrated that, when faced with a complex problem, the adaptive leadership and dynamic decision-making capability of the headquarter staff enabled a rapid re-tasking of forces on the ground within the exercise scenarios.

Events such as the Buncefield disaster and the financial crash in 2008 have negatively impacted on organisations within the UK. Yossi Sheffi discusses the reasons why events such as these had such an effect, using BP as an example. Most companies will have an approach to Risk Management, identifying high, medium and low-level risks. They will use this knowledge to then triage the risk and place safeguards to respond if these risks become manifest, making strategic and tactical decisions to control those risks that should be controlled and exploiting those that can be exploited.[566] High Impact - High Probability risks (HIHP),

Figure 63: British Standard BS:65000 Organisational Resilience model. Source: BSI

[565]McManus, S.T., `Organisational Resilience in New Zealand', 2008; Stephenson, A., `Benchmarking the Resilience of Organisations', 2010; Seville E. et al, `Building Organisational Resilience: A New Zealand Approach', 2010; Newnham, C., `Gold or Dust? Creating Resilient Organisations', 2012; Briggs R and Edwards C, The Business of Resilience, 2006.
[566]Coleman, T.S., *A Practical Guide to Risk Management*, The Research Foundation for CFA Institute, 2011, p.1

which could cause severe damage, are not of concern, as robust processes will be in place to react to the event. High Impact-Low Probability risks (HILP) are a different issue. These are events that organisations are poorly or not prepared for as they rate them as low probability. This can result in catastrophic damage to the organisation as the defences are inadequate or not in place.[567]

7.2 CRITICAL CONCERNS TO ORGANISATIONAL RESILIENCE

Key to the successful implementation of a comprehensive approach to develop resilience at a strategic level, either on the battlefield against an insurgency or within a company against disruptive events, is the building of situational awareness, which develops the understanding of organisational culture, required structure and leadership capability required to address the unfolding situation. This is like the approach that is taken within High Reliability Organisations, which seek to minimise the risk of accidents occurring. Unlike Perrow's approach, which proposes that, based on the Normal Accident Theory, complex organisations engaged in high risk operations, will experience disruptive events irrespective of their efforts to avoid these, Weick and Sutcliffe proposed that high reliability organisations exercise active practices to avoid such situations.[568] Their research into nuclear aircraft carriers, power stations and air traffic control towers noted that there were several similar activities that these conducted to minimise risks (Figure 64).[569]

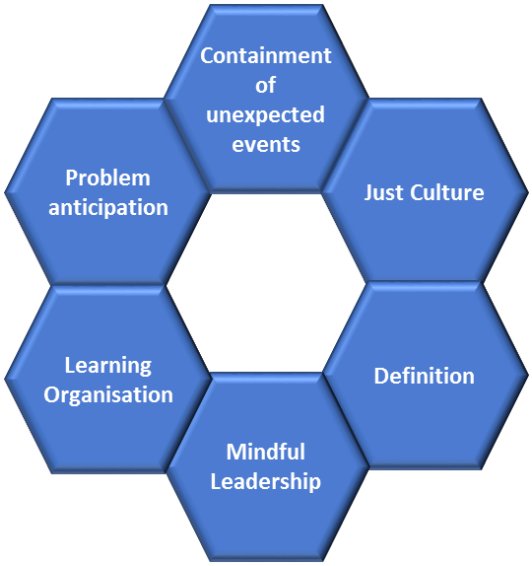


Figure 64: High Reliability Organisations Processes Source: HSE

It is important for high reliability organisations to operate differently to the approach proposed by Perrow as there is the need for multiple complex activities to happen simultaneously in a tightly coupled environment. Perrow noted that nuclear organisations and military systems were "high-risk", while industry and manufacturing plants were "low-risk". This was challenged by the work of Levenson et al who argued that their research identified that industrial plants demonstrated a higher incident rate than the complex nuclear or military systems.[570] As they and Weick and Sutcliffe noted, the complexity of the nuclear or military systems meant that any incident could rapidly become catastrophic, therefore the organisations were focussed on identifying potential areas of failure and addressing them prior to an incident occurring. This approach, using the factors in figure 64, developed a holistic approach to building a safety focussed culture to build reliability.

[567]Sheffi, Y., `Building a Resilient Organisation', 2007, pp 30 – 36.
[568] Weick, K. E., and Sutcliffe, K. M. Managing the unexpected: Resilient performance in an age of uncertainty. Second edition. San Francisco: Jossey-Bass, 2007.
[569]Lekk C., High Reliability Organisations: A review of the literature, Health and Safety Executive, Open Government License (OGL), London, 2011.
[570] Leveson, N., Dulac, N., Marais, K., and Carroll, J., Moving beyond normal accidents and high reliability organisations: A systems approach to safety in complex systems. *Organization Studies*, Issue 30, 2009, pp. 227-249.

These factors are applicable to the battlefield and the workplace, which are multi-faceted arenas of social, cultural and political inter-related values, each introducing complex interactions on the other. To deliver a successful outcome, the leader needs to be able to identify, manage and direct the competing values and narratives to create a single direction of travel, flexing their resources to absorb and respond to the various disruptive influences and impacts the organisation may experience. The successful leader can match the best available and capable resource to the disruptive event in a timely manner, while giving the correct level of direction with minimal interference to enable the successful mitigation of the impact to the organisation's strategy and daily activities. The early building of situational awareness is key, maximising business information gathering networks and analysts to turn information into intelligence. Within the battlefields of modern conflicts there is the need to work through indigenous forces, be these either security services, government departments or social structures, to build a relationship with the population to obtain their trust and support. Modern conflict is a competition between the insurgent and COIN forces, the side that wins the hearts and minds of the population wins the conflict. It is similar to the current influence campaigns within global markets as organisations use their brands and reputations to attract and maintain customers.

Within the rail industry a similar dynamic exists between Network Rail, the train operators and the public. As organisations of the State, both Network Rail and the UK military, while on operations, have key strategic tasks to deliver. For Network Rail it is the safe, secure and reliable running of the rail network, in all conditions. For the military, it is the delivery of a safe, secure and reliable security framework to enable other organisations of the State to function. Network Rail, like the UK military, is seeking to win the support of the host nation population, yet it is at arm's length, operating through the entities of the train service providers to influence the population and win their trust. Within this relationship there exists a recognisable issue that was also present in Iraq for the UK forces: when things went wrong, the Iraqi entities were quick to blame the UK forces, as was the UK government, even though at times the failing was down to a lack of strategic direction. Within the rail industry, when disruptive events occur, the train service operators and government departments are quick to apportion blame to the infrastructure manager, even though the management of train services and crews are the domain of the train operators, and strategic decisions around franchising agreements and access rights are the domain of the ORR and DfT.

At the operational level, the lessons identified from the analysis of the military can be used to assist the development of a resilience culture within the railway. The trackside environment is a hazardous area, with many separate systems linked across the nation. Though they may possess different qualities or run on different systems, they all share common hazards, such as working in areas which require controlled access due to the movement of trains; presence of high-powered voltage supplies; moving on uneven and at times unstable areas; and having to operate in slippery, uneven and unhygienic areas.[571] There are numerous risks to individuals daily, which become greatly magnified when there is

[571] Kearns, W., `Op/009 - Responding to Railway Incidents v4.1', *London Ambulance Services*, NHS Trust, 2012, p.4

a major incident or emergency. It then becomes imperative that the business resilience plan takes into consideration these risks and mitigates against them, thereby ensuring they do not become issues, add to the effect of an incident or worsen an emergency. Failure to have a proper strategy and management framework will result in an incident occurring as each layer of the business is penetrated. Organisational Resilience therefore requires a holistic approach to be delivered across all levels of the organisation to build the correct cultural framework, supported by tactical activities.

This can also be applied to the battlefield. Each organisation on the battlefield is there to deliver a capability. At the tactical element it is the infantry to close in and defeat the enemy; the tank to provide precision firepower and protection; or the aviation and aircraft which provide rapid strike and extraction capability. Support and sustainment are managed by the logistics or support agencies, maintaining the vehicle fleet or providing the human resource, administration or medical support required. To deliver this comprehensive approach to operations, there is the need to understand the long-term plan, the direction of travel and how it is to be managed. This is the central requirement of any organisation and therefore creates the core component of the framework.

7.3 SETTING THE CONTEXT FOR THE ORGANISATIONAL RESILIENCE MATURITY FRAMEWORK

As mentioned in Chapter 2, work into developing an Organisational Resilience has been conducted through doctoral research in New Zealand by Sonia McManus and Amy Stephenson, both working closely with the ResOrgs group. By reviewing their published frameworks and the findings of their research, it was clear that while their work provided a capability to measure the Organisational Resilience of an organisation; there were elements missing from their frameworks.

The ORM3 framework, developed as part of this project, sought to build upon the existing knowledge, utilising the findings from the research and develop a framework, with the supporting information, for UK industry to utilise in building a greater understanding of Organisational Resilience, and how to measure it. There was a clear justification, identified in Chapter 4, in the need to build, enhance and sustain Organisational Resilience within the industry sector; it was also clear that currently the mechanism to do this was not evident.

7.4 TESTING ENVIRONMENT – THE ’LIVE’ CASE STUDY

The live exercise sought to assess and observe how the command group of a Battlegroup Headquarters would operate in a destabilised situation to bring order and lead the development of Organisational Resilience within their area of operations. The aim was to force the individuals out of the comfort zone of normal high tempo military operations, for which the British Forces had been trained and regularly exercised in, and instead focus on the “Hybrid Warfare” situation, concentrating on the development of long term recovery and resilience building activities. To enable this, it was designed to enable current military planning processes to be utilised, building on core skills and capability, while enabling the testing and observation of leadership skills in developing a strategy to manage a long-term complex

situation initially with a limited level of information. While technical equipment and well-rehearsed practices can give teams the edge, the critical element within complex incidents is clearly the human factor, represented by the commander and their team.[572] Reference documents and international reports were used to build a credible situation, which delivered both political and operational complexity for the audience.[573]

By building a complex political environment, supported through a destabilised national identity and a disenfranchised population, the case study sought to place the military commanders and their teams in an already complex, complicated and congested battle-space, with the need to temper activity and understand 2nd and 3rd order consequences being paramount. This pressure to understand the importance and fallout of their actions at the operational, social and political levels immediately placed the teams under a degree of simulated pressure. This was increased through reduced planning timelines, primary and secondary tasks being filtered into the headquarter planning teams from several media lines of communication, and the need to maintain full situational awareness of the unfolding socio-political environment surrounding them. Aligned to this, using the digital virtual reality testing system, which enabled the assessment of the activities through the application in a virtual battlefield, the CAST(S) team, as part of the case study analysis, could observe the decisions being taken in real time, and the impact that they were having on the situation and the participating soldiers. This also added to the level of complexity, as the headquarters team were having to manage the deployment, activities, recovery and intelligence dissemination of troops "recovering" from the combat zone.

The assessment team observed and graded the teams on their performance through a detailed performance report, noting how they maintained capability and operational effectiveness through the activity. After seven days, the teams were debriefed, taking key observation points and lessons from the various events that they had experienced, before being immersed into the next phase of the case study. This was based on similar situations, but in a different political and social context; the aim of this second phase was to observe whether the ability to reflect and consider their activities enabled them to improve their resilience capability through collective learning. Through observation of the two live case studies, over two separate exercise cycles, the information that was captured within the performance reports was then distilled to identify the key components that helped enable the organisations to function effectively throughout a highly complex, demanding and sustained period of activity. This enabled the development of an understanding of key factors for building and sustaining resilience, utilising a learning organisation approach to the framework development.

[572]Burke 1997 – Competence in Command, p.261.

[573]MacDonald N., QC, *Afghanistan: The Relationship Gap*, The International Council on Security and Development (ICOS), London, United Kingdom, 2010; Ledwidge, F., `Justice and Counterinsurgency in Afghanistan: A missing link', *RUSI Journal*, 2009; Wilson D. and Conway, G., `The Tactical Conflict and Assessment Framework: A Short-Lived Panacea', *RUSI Journal*, 2009, Vol 154, No.1, pp 10-15; Newton, P., Colley P. and Sharpe, A. `Reclaiming the Art of British Strategic Thinking', *RUSI Journal*, 2010, Vol 155, No.1, pp 44-51;

7.5 DEVELOPING A LEARNING CULTURE.

Across both the military organisation and the industry departments the research identified several key concerns about the culture of the two separate organisations and the ability to effectively identify and implement lessons from experience and review. A detailed review of the principles of a Learning Organisation in Chapter 2, and the three campaigns in Chapter 5, noted that there was a strategic failure of the military to apply lessons learnt at the outset of each campaign.

So how do we develop a Learning Organisation that enables it to identify, respond, adapt and thrive in an environment that is Volatile, Uncertain, Complex and Ambiguous (VUCA)? Peter Senge promotes an approach that organisations need to implement if they wish to survive within the VUCA landscape, and which forms the core of a Learning Organisation. He notes that organisations need to embrace Systems Thinking, to understand how various elements impact each other. There is the requirement for individuals within the organisation to seek Personal Mastery of their trade; to become experts within their roles and understand how to constantly grow and develop within that role to support the growth of the organisation. The third element is the building of the Mental Model, which assists employees to blend and adapt the way the company is developing. It helps them feel that they "belong" within the organisation and are key to its growth. If this is supported through the development of team learning, sharing understanding between the various elements of the organisation should help break down silos. The final key element is the development of clear direction for the organisation through the shared vision of the leadership team to the workforce; this enables objectives, activities and strategies to be aligned across the business. The following sections identify the critical areas required to develop the ORM3 framework based on the research conducted.

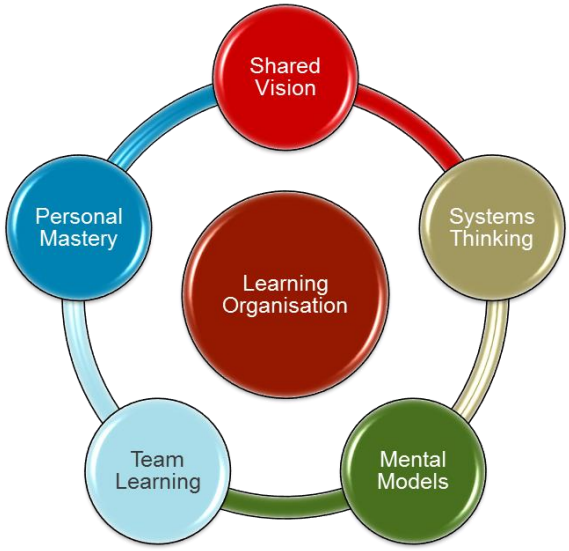


Figure 65: Key Learning Organisation Processes
Source: Senge

7.6 ORGANISATIONAL RESILIENCE COMPONENTS

7.6.1 Culture and Strategic Leadership Capability

The leadership of an organisation needs to clearly outline the objectives required against which the delivery plans would be aligned, as well as setting the direction that the organisation undertakes. This formulation of strategy promotes the understanding of resource requirements and delivery, allowing organisations to track their effectiveness. In industry it is calculated in terms of profit and loss. On the battlefield it is calculated through casualties, materiel expenditure and objectives achieved. Using Hofestede's original dimensions of culture, the UK military demonstrates a strong sense of Collectivism when on operations, with a strong focus on the team mission, belonging and the building of tight knit

bonds to manage the delivery of tasks. When reviewed against the organisational dimensions of culture, developed to study companies and business, the military on operations is a results-orientated, employee focussed, professional, closed system with tight but pragmatic control. This allows the organisation to get the best out of the personnel on the ground through the provision of clear direction and the flexibility of an adaptive leadership mentality enhanced by a well-developed localised support network. The military has also developed the means to rapidly change the culture of teams, from warfighting to recovery to UK focussed operations. This ability requires a clearly defined and controlled methodology to enable the organisation to transform from a hierarchical framework when in barracks, to a more adaptive and agile entity, based on the adhocracy model.[574]

By understanding the Contemporary Operating Environment, the military adapts the culture of the deploying organisation to enable it to function as effectively as possible through a defined mission, adaptive leadership and a cultural framework suitable for the task at hand. The ability to change from hierarchical to adhocracy releases the key component of the UK military's capability; that of Mission Command (Figure 66), with the change in cultural frameworks aligned to the operational deployment preparation phases.

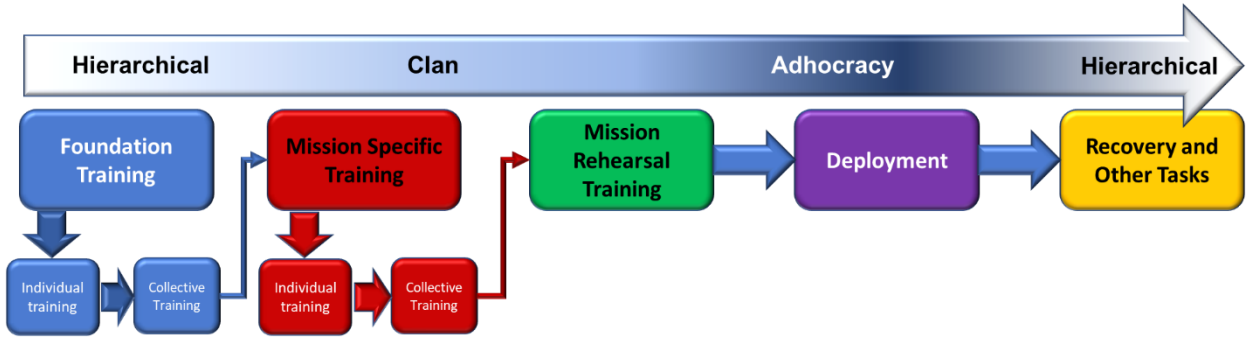


Figure 66: Cultural Framework Changes in the Force Readiness Cycle. Source: Author

Within the military, the successful delivery of any organisational change is the presence of effective and timely strategic leadership. Through the development of an adaptive leadership framework, the senior leadership team can lead the required cultural change programme, utilising the support of the various managerial staff below them, to maintain momentum while remaining aligned to the strategic objectives which are driving the need for cultural change. The right leadership framework and strategic direction are key to building organisational resilience. The apparent new phenomenon of strategic leadership and the desired factors first discussed in the early 1980s within business schools is also not new, though in recent years this thought stream has also been remarked on by senior UK military officers as the characteristics of conflict have changed. General Kiszely commented on the need for future military

[574]Cameron K S and Quinn R E, *Diagnosing and Changing Organisational Culture: Based on the Competing Values Framework*, 1999. Note: An adhocracy, in a business context, is a corporate culture based on the ability to adapt quickly to changing conditions. Adhocracies are characterised by flexibility, employee empowerment and an emphasis on individual initiative. For the military on operations, flexibility, “Mission Command” and empowerment are key to responding to the various risks and challenges experienced on operations.

commanders to have the ability to utilise the concepts of business and warfare jointly to deliver success within a COIN environment.[575]

Organisational leadership teams must support staff to remain flexible, informed and given clear direction to allow the organisation to achieve strategic success. The strategic vision sets organisational direction which then creates the organisational culture to achieve that vision. This culture is maintained by the adaptive leadership framework, which seeks to empower the workforce, developing an agile organisational core which can flex to and absorb disruptive events. Within the military, this leadership framework is known as `Mission Command', which empowers the junior commander to make decisions based on knowing their commander's intent. During the Iraq campaign it was observed that this flexibility of command had been lost, with frontline commanders having their decisions scrutinised by officials in Whitehall.[576] This leadership paralysis was apparent across the organisation, with poor political leadership, inappropriate training and a failure to understand the local population dynamics.[577] This resulted in the UK revising their leadership framework, adopting Krulak's `Strategic Corporal' approach, which was endorsed by General Patreaus with the aim of decentralising decision-making and develop a more flexible force while operating in a congested, complex and dynamically changing environment.

The Strategic Leader has got to be aware of the current operating state and the capability of their organisation, how it is functioning, under what pressures and its cultural framework. This is as important for the materiel that is present as it is for the personnel. Recent operations have shown the impact of poor management of the human element, resulting in the excessive combat fatigue witnessed by British Forces in Iraq and Afghanistan, brought on by a lack of understanding of the size of the task by the strategic planners and the political leadership in Whitehall. General Elliott, North and Ledwidge have looked at this in detail in their publications. In his Defence Research Paper, Colonel Biddick analysed the `*strategic illiteracy*' of the policy decision makers during the Iraq and Afghanistan conflicts, identifying serious concerns regarding the capability for the UK political leadership to manage and understand the importance of Grand Strategy.[578] This matter was also investigated by the House of Commons Defence Committee due to the severity of the planning errors and incorrect assumptions that were made during the conflicts, which generated a political response from the Government.[579]

Similar leadership and communication issues, as well as poor risk management practices, were identified within Network Rail's engineering over-runs in 2013-14, which shared similar issues as those experienced in 2008. The evidence, gathered through the questionnaires into the rail industry, identified key leadership issues, poor staff engagement and a blame culture that impacted on organisational learning, causing junior managers to feel unsupported in making decisions. As a result, they would

[575]Kiszely, J., `Post-Modern Challenges for Modern Warriors', *The Shrivenham Papers*, Number 5, Defence Academy of the United Kingdom, Shrivenham, 2007, pp 8 - 13.
[576]North R, Ministry of Defeat, 2009; Ledwidge F Losing Small Wars, 2012.
[577]Johnson A.L., (ed) Wars in Peace, RUSI, 2014, p.124.
[578]Biddick, D. S. J., `British Strategic Illiteracy', *Defence Research Paper*, Advanced Command and Staff College Course Number 14, Joint Services Command and Staff College, Defence Academy of United Kingdom, Shrivenham, 2011.
[579]House of Commons Defence Committee, `Operations in Afghanistan: Government Response to the Committee's Fourth Report of Session 2010 - 12`, Government, Whitehall, The Stationary Office, London, 2011.

regularly abrogate their decision-making responsibility to more senior individuals to decide. The report into the 2013-14 engineering over-runs highlighted that frontline managers were afraid to notify their line managers of delays and issues until it was too late to mobilise resources. The blame culture impacted on resilience and capability, damaging the leadership model and impacting on the agility of the organisation. The delivery of the Planning and Delivery of Safe Work (PDSW) Programme is another area where we see a failure of the senior leadership to address the ingrained culture of the rail industry. The PDSW programme sought to enhance planning of engineering maintenance works, placing better safeguards within the process to minimise the risk to track workers. Eight months after the programme had been delivered, RAIB released several reports on poor safety behaviours, limited safety planning capability and poor cultural behaviours. In March 2018, a works team had deployed on to the worksite with no-clarity as to who was appointed as being in charge, several unsafe working practices being conducted, and the workforce spread over a large area. This resulted in workers being narrowly missed by a moving train.[580] The RAIB report indicated that Network Rail had not effectively managed or evaluated the rollout of the updated safety planning framework. In 2019, two railway workers were not so fortunate, with them being struck and killed by a moving train. The concluding investigation identified several similar issues to that of the March 2018 incident. The lack of organisational learning had resulted in a tragic loss of life.[581]

7.6.2 Organisational Assurance

Key to delivering an effective organisation is the ability to maintain operations during all situations, while being aware that the relative structures and activities provide the correct level of assurance, insurance and governance, directed by the correct policy and strategy frameworks. This enables the core element of the organisational values to be woven into physical activities to improve the assurance throughout the organisation and supply chain. Critical to developing the assurance framework are measurements of performance against Key Performance Indicators, effective risk management practices, clearly defined and supported internal monitoring, and an assurance framework supported by internal and external audit and objective analysis. This enables the organisation, through the development of standards, strategy and organisation policy, to achieve the stipulated legislation it is required to operate within.

[580]Rail Accident Investigation Branch, `Near miss with track workers and trolleys at South Hampstead, London 11 March 2018', *Accident Investigation Report 20/2018*, Rail Accident Investigation Branch, Department for Transport, London, 2018.
[581]Rail Accident Investigation Branch, Track workers struck by a train at Margam, South Wales, 3 July 2019, *Accident Investigation Report IR1/2019*, Rail Accident Investigation Branch, Department for Transport, London, 2019.

Applying these criteria to the rail industry, specifically the two strategic areas of incident management and strategic planning, there are several activities that need to be addressed through lessons learnt from the military. The military has developed an assurance framework through the creation and maintenance of a doctrinal framework, from political strategic direction down to the front-line practices it employs, which spans from NATO directives, through UK Joint Force doctrine, single service doctrine and functional practice directives directions (Figure 67). This creates an operating framework which enables the organisation to perform against certain criteria, which also provides key performance indicators that units can be assessed against. Through the effective mapping of the documents, philosophical direction is transformed into battlefield activities, aligned against the culture and ethos of the military, delivering political effect. This doctrinal framework then provides the assurance criteria when post-operational reviews, parliamentary enquiries and campaign analyses are conducted by external organisations. This process, supported through lessons learnt and internal auditing, provides a robust methodology to effect change. Two clear examples are:

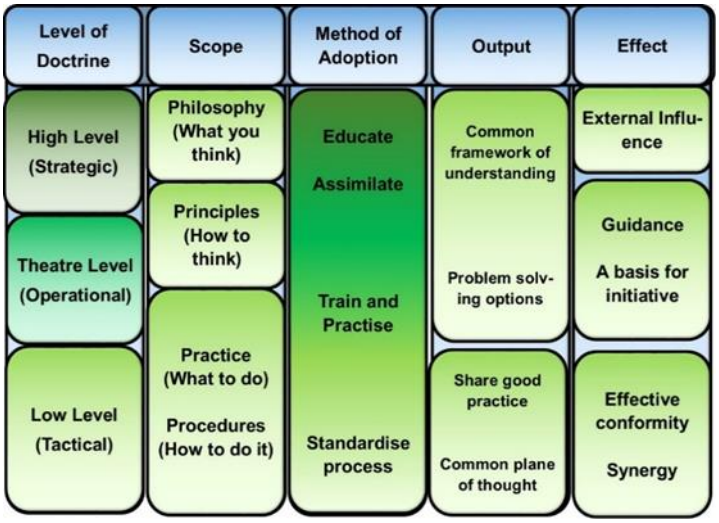


Figure 67: Doctrine Hierarchy Map. Source: MoD

- The review of military procedures post-Camp Bread-Basket inquiry, which saw a breakdown of UK military integrity and leadership within a detainment camp in Iraq, leading to the death of an Iraqi inmate and reports of systemic abuse of detainees. The identification of a complete breakdown of the military values and operational standards resulted in the directive that all service personnel receive an annual Values and Standards educational package.

- The review of British COIN tactics, practices and procedures within Iraq during 2003 – 2005, which clearly identified a lack of capability, understanding and resources to effectively deliver campaign success. Through this process, it was identified that one of the factors impacting on success was the out-dated COIN doctrine. Initially the newly published US Field Manual 3.24 was applied, then replaced with the newly designed UK Chapter 10 Countering Insurgency doctrine.[582]

Military training establishments are subjected to three tiers of assurance reviews; 1st Line Assurance, conducted by the Brigade Headquarters, 2nd Line conducted by the Army Inspectorate team, and 3rd

[582]United States Army, Field Manual (FM) 3.24: *Counterinsurgency*, Headquarters, United States Army, Washington, 2006; Ministry of Defence, *British Army Field Manual (AFM) Volume 1 Chapter 10: Countering Insurgency*, 2009.

line, which is conducted through Ofsted review. This assesses internal and external assurance and benchmarking against a recognised standard. The military is also subject to political assurance review through the Defence Select Committee, which provides four layers of assurance monitoring.

The same cannot be said for the rail industry. While the military has a risk awareness on operations, with each commander being taught to understand and conduct risk analysis through the planning process, recent investigations and reviews of projects and programmes in the rail industry have shown assurance to be sub-optimal, the May 2018 timetable rollout and PDSW issues being testament to this. An analysis of the Network Code[583], highlights several issues with this strategic document, including the planning timeframe not being fit for the purpose of a modern railway. There is little redundancy in the planning process, with many planning events tightly coupled. Multiple processes do not integrate until late in the process, increasing the probability for errors. The document is also non-compliant to EU law, resulting in conflict being placed across international freight corridors. Furthermore, where the military may red-team a plan, there is no time within the strategic planning processes for the timetable to be rigorously checked[584] prior to roll out. Any issues present will materialise and then require a rectification and change process. The Network Code is also extremely limited in advising organisations as to how to proceed when a situation is sub-optimal or breaks down. There is little guidance on how to set and maintain key priorities within the planning framework.

Combined, these issues identify a strategic framework that is not suitable for the railway of today. The rail industry is subject to a certain level of external auditing via the regulator, with results captured within the monitoring report published quarterly. In the response to a disruptive event, the RAIB will also conduct reviews and assurance examinations of practices and procedures. In the event of a strategic event, the Transport Select Committee may conduct a review. However, unlike the military on operations, these audit events are reactive. The military, through its assurance reviews and constant lessons learnt, red-teaming and exercising, creates a pre-emptive approach to preventing disruptive events, based on intelligence, analysis and observations.

As the government report into the May 2018 timetable demonstrated, better pre-emptive planning reviews and effective risk management might have prevented the catastrophic impact. Furthermore, the complexity of the industry leadership and constant flux of political strategy prevents the implementation of a long-term assurance framework. This reflects a difference in mentality between the military and the rail industry. By being risk aware, the military personnel on operations have integrated risk management into their planning process, as well as an understanding of how situations may change. Developing courses of action and contingency plans are also part of the planning and implementation phases, tested in the wargaming and red-teaming phases of planning.

[583]The Network Code, 2020, available at https://sacuksprodnrdigital0001.blob.core.windows.net/network-code/Network%20Code%20and%20incorporated%20documents/The%20Network%20Code%20.pdf
[584]Network Code, 2020, pp D45 – D47, available at https://sacuksprodnrdigital0001.blob.core.windows.net/network-code/Network%20Code%20and%20incorporated%20documents/The%20Network%20Code%20.pdf

7.6.3 Organisational Agility

As shown through the analysis of the military, the clearer the understanding of the risk, the easier it is to identify potential hazards and issues that can impact on the organisation. The reports into the management of complex situations within the railway identified a systemic gap in the management of dynamic risk in both the operational incident response and the strategic planning processes. Whereas the military have developed a process, based on the planning cycle, that can be used in tactical, operational and strategic planning, with risk, consequence management and contingency plans being part of the planning framework, a similar holistic framework does not exist within the areas investigated within the rail industry; instead there is a reliance on the experience of project and programme managers to use the required tools and processes.

The tactical planning process provides a guide for the local commander to consider the situation, based on the information and intelligence that is available at the time, allowing the development of an operational plan that is designed through evidence-based analysis. The review of the questionnaire and the comments from personnel indicate that no such framework exists in such detail within Network Rail. The organisation relies on the experience of the individual, while the military have developed a process that is taught and regularly tested. This enables all commanders to be able to apply the process when under extreme pressure, through an unconscious bias of understanding. Secondly, as there is a single process that is used from the frontline team commander up to the Brigade commander, this provides a "mental model" of the planning mechanism. This empowers junior commanders to push potential courses of action up the chain of command, demonstrating true adaptive leadership capability.

A review of the Rail Incident Officer's (RIO) course, the Station Incident Officer's (SIO) course and Route Control Centre incident response training identified a hierarchal approach to incident response, with less adaptive leadership than the military and a more defined command and control directive. There was little evidence of adaptive planning and contingency planning. Within the SIO and Control Centre training it was a case of one option that was implemented and if this failed, a second option was initiated from the beginning of the planning process. The senior RIO course, which had been recently developed and is still being implemented, had been adapted to a three-day multi-agency training event with the emergency services. This course was beginning to embrace the potential of Joint Working but was still command and control heavy.

On operations the military will maintain a standing reserve, which can be deployed in a major incident to provide a rapid response to an unfolding crisis with the aim of preventing the situation escalating and allowing the headquarters time to move more assets to the right place. In the UK there is a similar crisis management team, located within the Standing Joint Command Group, that provides an immediate response to buy the military more time to deploy the correct resources to the right location. The Crisis management team provide the initial strategic guidance and mobile reserves to deliver an immediate response. Within the railway infrastructure manager's organisation there was no such holistic capability.

During the period of 27-28 October 2013 when the St Jude storm struck, there was no strategic co-ordination of resources which resulted in the South East routes being left to manage by themselves. The same situation was witnessed in February 2014, with the Western route being left for a sustained period to cope with the collapse of the Dawlish sea wall, rendering the railway impassable. Several issues existed that impacted on the response and recovery capability:

- The National Operations Centre was only able to advise, not direct, the routes as to what is required. This limits its ability to move vital resources around the nation to respond to large scale disruptive events;

- There was no Strategic Crisis Management team; the local routes took strategic control of the situation and only after a period of time is a Crisis Management Team stood up, relying on the experience of individuals rather than proper training, knowledge and regular practicing and exercising as a team;

- The organisation employed five Emergency Planning Specialists to over-see the routes' emergency planning, reviews and re-writing of plans, practices and procedures. These individuals are not JESIP trained, although three of them were ex-service personnel;

- No defined training strategies existed for ensuring the route leadership teams were properly trained and prepared in how to respond and manage a major disruptive event. Few of the senior staff had attended emergency exercises or engaged with their Local Resilience Forums.

Discussions across both the operations and strategic planning departments also identified a lack of business continuity frameworks, key objectives and a clear understanding of risks and issues which would have been identified through a departmental Business Impact Assessment. Unlike the military, which had a doctrinal publication, practices, procedures and a management structure aligned with the national standard since 2001, no such equivalent existed within the Railway infrastructure manager. Collectively, the lack of a business continuity management system and a fully developed incident management training framework compromised and limited the level of resilience to disruptive events within the company. By not fully understanding the key recovery priorities, many response teams were already operating in a limited capacity. It also brought into question whether, as a Category Two responder, it was fulfilling its licence to operate the railway. An area of learning that can be implemented is the linkage between identifying the risks and their management, building organisational assurance processes and practices and communicating them through to the relevant parties that need to know and apply the various mitigation plans. This can then engender a collaborative approach across various teams to manage the risks. The investigations into the 2008 and 2014 engineering over-runs, as well as the May 2018 timetable crisis, all indicated concerns regarding how well risks were identified, tracked and communicated to various parts of the business. This was reinforced with the strategic planning questionnaire, with 25% stating communication was a problem (30/118 respondents) between teams,

customers and stakeholders, while 39% (46/118 respondents) indicated a lack of collaboration as a major contribution to planning issues.

7.6.4 Organisational Governance and Structures

Organisations require structures, governance frameworks, resource management and the ability to build and sustain the workforce and future talent. The governance mechanisms that are built into the organisation are vital to providing a level of trust between the organisation and its stakeholders. It is increasingly obvious that society's expectations of an organisation's performance and behaviours, and thus governance, are rising.[585] The case study into Iraq showed the impact of poor governance and the importance and how it can affect the performance and reputation of an organisation. The British Standard, BS:13500, sets out a clear governance model, based on best practice, for organisations to implement. [586] Research has shown that within the rail industry there are concerns with governance frameworks currently in place in the Strategic Planning and Operations departments. Rail incident reports raise concerns over safe work practices, levels of fatigue and poor decision-making, which have had major impacts on the stakeholder groups in the Operations department's activities, while respondents in the Strategic Planning department raised concerns over managerial practices and accountability.

> `Updates on changes to policy/standard needs to be cascaded better. Conveyance on how this affects people on the ground must be cascaded. Identification of specific training to specific roles might be useful. Regular refresher courses will also help.'
>
> *Resilience questionnaire Respondent 1*

> `Provide an integrated approach to resilience management that provides clear direction in respect of individual's responsibilities when dealing with a resilience management incident. This needs to be the subject of a targeted communications campaign, underpinned by relevant individual/group training and briefing. Resilience management plans need to be developed and then tested (the results of which should be appropriately reviewed and de-briefed). The plan(s) also need to be kept up to date.'
>
> *Resilience questionnaire Respondent 90*

> `Stop bringing in consultants from outside who know nothing and pretend everything will be all right if we adopt process xyz. Any process will work if it is followed correctly. Stop pretending that change won't happen if we get the process right.'
>
> *Strategic planning questionnaire Respondent 100*

Developing collaborative working practices across an organisation also supports the creation of a strong governance framework. By conducting effective joint working practices, businesses can address

[585]British Standards Institute, *BS 13500:2013 Code of Practice for Delivering Effective Governance of Organisations*, 2013, p.1.
[586]Ibid, p.1.

potential risks and issues, minimise duplication of effort, share knowledge and research, and minimise disruptive events through collective intelligence gathering and sharing. The military have developed this to a high level, with clearly written directions, methodology and practices published through Joint Doctrine Publications, many of which are referred to in this research although, when investigated, are poorly communicated to or read by the members of the organisation. Collaborative working provides a strong capability as each functional element understands the requirements and capabilities of the others. The military maintain and enhance these capabilities through regular real-time exercising, simulation training, Table-top scenario training and case studies. This knowledge and skills sharing, especially on operations deployment preparation helps identify and mitigate potential risks and issues. The rail industry does not have such an elaborate methodology of collaborative working practices. Across Network Rail only one department had obtained recognition of collaborative working through the British Standard 11000:2010 - Collaborative Working Frameworks. This standard seeks to build better relationships between the organisation and stakeholders.

Within the incident management and strategic planning domains, collaborative working practices with either the emergency services or train operators are key to success. For incident management, joint ways of working and an understanding of the requirements of each responder enables rapid response and recovery of the situation. Unfortunately, there were several occasions where members of both the military and rail industry highlighted that there was a lack of education, especially in the management of disruptive events that required co-ordination with multiple organisations, either within stations, or on the battlefield. The research highlighted a lack of incident management understanding around the importance of joint working at tactical and strategic levels within leadership teams of both the industry case study organisations. The expectation was placed on the experience of the individual, rather than the training and education of the team. The comments below reflect these concerns:

> `More cross-industry / agency Table-top and mock incident management scenario events'.
>
> *Resilience Survey Respondent 10*

> `Resilience often requires assets that are not fully utilised. True resilience for the railway will require the TOCs and FOCs to work with each other to permit diverse routing of services etc. Unless government is prepared to fund resilience and require the TOCs and FOCs to co-operate then it is difficult to see how things can improve radically'.
>
> *Resilience Survey Respondent 17*

> `Requires dedicated training, focused on individual areas of the operational estate, tailored to individuals' capabilities. Cross functional training would improve resilience'.
>
> *Resilience Survey Respondent 24*

Within the strategic planning functional area, there is also a need for collaborative working between the customer teams and operators to develop the proposals, and the capacity planning teams and the

operators to manage the train service bids and turn them into a functional national timetable; May 2018 saw the impact when this collaboration and effective planning breaks down between various parties. The development of training material and the implementation of a competency framework for the Customer Teams would increase the capability of the teams and the quality of the information provided, supported through a more robust governance and assurance framework at the tactical and strategic levels. The development of a Service Level Agreement framework and an escalation process for the operators within the process addresses issues around greater customer engagement, better information awareness and effective assurance and monitoring of the decision-making process. It would also be aligned to the auditing framework, thus enabling an independent observation of the end to end process to be conducted. This level of knowledge and awareness improves resilience through better corporate accountability, collaborative working, breaking down of silos and evidence-based analysis.

An update of the Network Code to provide better strategic guidance to address poor cross industry planning behaviours would be beneficial. Clear decision-making criteria that are objective and simple to apply, clearer application of the Access Rights granting process and better risk management frameworks would provide increased confidence within the planning teams, improved planning at the front end of the process and more effective communication. These governance and assurance frameworks provide a strong framework at organisational and functional level, enabling the development of an effective strategic planning capability.

7.6.5 Organisational Strategic Planning Capability

The understanding of the organisational vision is critical, as Grand Strategy sets the End state for the military to plan its approach to a campaign (Figure 68), or for the MoD to engage with industry to procure the right equipment with the right contracts in place to maintain an agile edge over the opponent. From the strategic direction of Government, either through policy or the National Security Strategy, the military command group can then develop the required Defence Doctrine framework with which to guide the military in how they will deliver their strategic tasks. British Defence Doctrine provides the broad philosophy and principles that underpin how the military should be employed on behalf of the State, by the current Government.[587] National doctrine, derived from the British Defence Doctrine Capstone document, enables the development of a Mission Command framework as it sets the strategic intent for the military commanders to align the military against. The linkages extend from Grand Strategic decision-making

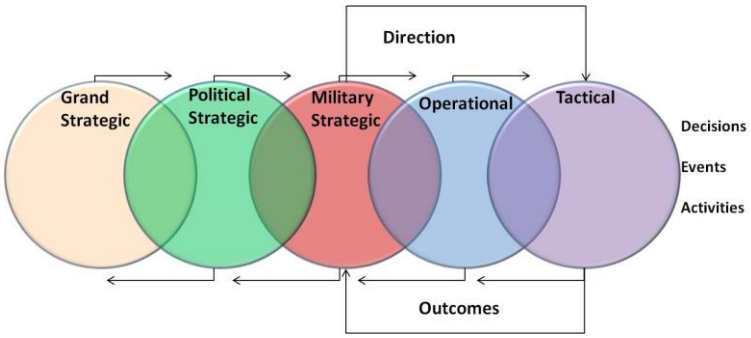


Figure 68: Interactions Between Tactical and Grand Strategic Planning. Source: MoD

[587] MoD, *Joint Doctrine Publication (JDP) 0-01 British Defence Doctrine*, 2011, p. 1-1.

through to tactical events occurring on the ground, reflecting the importance of getting the strategic leadership and policy right at the outset of the campaign.

Within the rail industry, the DfT sets the end-state for how the rail industry is intended to operate, with its key delivery requirements. This political strategy sets the key requirements and objectives for delivery, which in turn impacts on the creation of the operational tasks and, if things go wrong, the response to the various disruptive events. However, this strategy is at risk and subject to change every five years, based on the political party in charge. Given that the infrastructure requires a 10 year plus framework to deliver large scale, complex programmes of renewal and enhancement, the ongoing political risk creates a volatile planning environment. This can be clearly seen in the cancellation of the Western line electrification programme in 2017, five years after it had been endorsed by Parliament as the way forward. Investigations by the Transport Select Committee raised concerns over the financial mechanisms and strategic planning within the decisions made by the then Transport Secretary.[588]

The analysis of the strategic reviews conducted on behalf of the DfT into the rail industry has shown an industry that lacks effective strategic leadership at an industry level. The ongoing disruptions occurring on the TSGN rail franchise, the May 2018 timetable crisis, and the failure of the East Coast Mainline Franchise after only three years demonstrates serious leadership concerns at industry and political level. The recent review of the Franchise framework and passenger experience by the Transport Select Committee painted an industry that is suffering from a lack of direction, management, monitoring and governance. The Passenger Experience report recommends greater assurance measurements, more robust controls and strong leadership to remove failing franchise owners, while the Franchise report identified that the concept of franchising had failed to deliver the proposed benefits to the Network.[589] It also held the political leadership responsible for the failed running of the TSGN franchise through a lack of leadership and robust governance.

With these issues providing an unstable environment for the rail industry to operate within, there is a need to address the current situation. Strategically, there needs to be a political cross-party agreement that the rail industry is not a tool to be used for election purposes. Like Defence, there needs to be an agreed strategy for 30 years and beyond to enhance and improve the network. This calming of the strategic environment would provide a baseline for the infrastructure manager and the Franchise owners to plan collaboratively. With a stabilised strategic environment, there can then be the revision and, if required, the re-write of the Network Code to suit the modern railway. Provision for multiple infrastructure managers who are a mixture of private and public owned organisations, agreed cost and benefit sharing for major renewal works, and a cross-network charging fee that applies to all the train operators would provide a stable framework for operators. This would reduce the risk of major issues

[588]House of Commons Transport Select Committee, `Oral Evidence: Rail Electrification, HC702', House of Commons, Whitehall, London 2018, pp 2-12.

[589]House of Commons Transport Select Committee, `The Future of Rail: Improving the Rail Passenger Experience' Sixth Report of Session 2016-17, House of Commons, Whitehall, London 2016; House of Commons Transport Select Committee, `Rail Franchising', Ninth Report of Session 2016-17, House of Commons, Whitehall, London 2017.

caused by engineering over-runs or critical over-sights due to teams planning in an air of uncertainty, providing a better environment for operators to develop the strategic operating plans against. While the reports into the 2008 and 2014 engineering over-runs highlight a poor risk and planning capability within the operational teams, the development of a stable environment removes several issues, including potential major disruptive events that can impact normal service. Within that calmer environment, the activity of obtaining access to the network, or changing the services that are being run, can also become easier for operators to plan.

Ideally a framework should be implemented where there is a transparent planning process, so issues are addressed collaboratively. Within the military, this is known as a Common Information Operating Picture, which enables all members of the organisation to be aware of what is happening across the operations zone. While there will be restricted information that cannot be shared with others, there is a high-level awareness developed so all parties remain informed. To develop this, there is the requirement to review and update several strategic planning processes across the industry. Though these changes will provide better assurance within the planning domain, they also range across other domains within the ORM3 framework, demonstrating the need to implement the framework holistically. This research has resulted in the proposal of changes to improve several processes, frameworks and develop the internal capability and resilience of the strategic planning department. These activities have been taken forward for further investigation within the rail industry.

These activities aim to develop a more customer focussed framework, obtaining assurance and governance through a better approach to information management and shared awareness. As shown during the observations of the military live case studies, by developing this capability, an organisation can increase its resilience footprint through the activities of others.

Within the military, the ability to manage change, at all levels, is critical to mission success. Organisations are deployed into complex, dynamically changing environments, many with hostile actors included within the stakeholder groups. Through the training, preparation for and exercising activities that the organisation conducts prior to operational deployment, the planning staff are trained to become comfortable with change and skilled in applying the military planning tool. While military personnel can apply and adapting the planning process, where required, a similar capability does not exist in such depth within the rail industry. Chapter 6 analysed the responses to the planning questionnaire, which indicated siloed working, lack of collaboration, lack of accountability and levels of conflict between rail organisations. Clearly there is need to develop a more inclusive culture and technical changes, in order to set the conditions for greater resilience within the timetable strategic planning process. While culture, processes and technology impact on the strategic planning capability of an organisation, the development of the workforce is critical to maintaining the planning and ability to manage change within the operational and strategic environments.

7.6.6 Organisational Capability Development

This domain covers the areas of effective communications, continuous improvement, the inclusion of

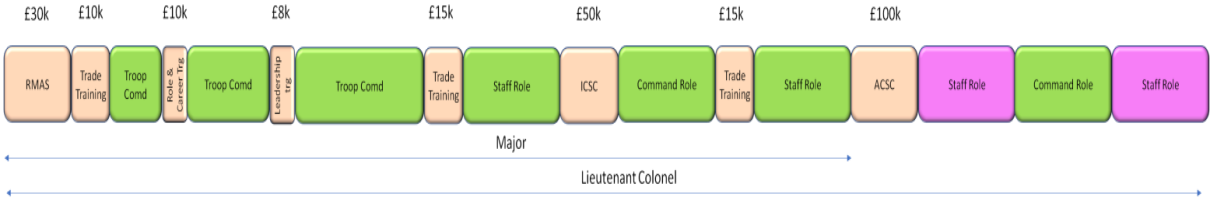


Figure 69: Leadership Development in the Military Source: MoD

research and innovation, staff talent and succession management, effective staff engagement, focusing workforce development to operate effectively during disruptive events, enabling personnel to apply adaptive leadership frameworks and operate towards the delivery of the organisational objectives. Research by Sheffi, Adair, The UK Defence Academy and Yardley et al has shown that an important element of building organisational resilience capability is workforce development across all levels. Informal networks, open communications and teamwork builds a tight-knit team which can manage disruptive events. Conversely, lack of such networks, or a culture biased towards apportioning blame, damages an organisation's ability to react to events which destabilise normal operations.

Clear guidelines exist within the military on the management of key resources and the succession planning framework to build and manage talent. Individuals are taught to do a minimum of two roles. Everyone is trained to a basic infantry level enabling all members to perform basic combat fighting tasks. On top of this, individuals are then taught their role speciality, enabling them to work as part of a tightly knit team but, in extremis, also operate as an infantry soldier.

Looking at the managerial level of the military, the leadership talent of the individual is developed throughout their career by structured periodic training and development events. As a Major (middle management), over £138k is spent on the individual's development, while for a Lieutenant Colonel, the next level up, that is increased to £238k per individual (Figure 69).

The development courses that are spread across an individual's career are created through a defined process, aiming to provide the right level of development for the role. Key technical skills are mapped to the job description, supported with behavioural and soft skills modules, known as Command, Leadership and Management (CLM) events. This framework is designed to promote the skills of critical analysis, effective communication, management of others and adaptive leadership and decision-making. During the initial phase, individuals are also introduced to the importance of corporate values and standards and are regularly updated on issues and means to address them. Sheffi's research, also looks at how military organisations develop the capability of their personnel. He proposed that through

six interlocked steps teams can develop the ability to manage dynamically changing circumstances effectively.[590]

The development of military training material utilises the Defence Systems Approach to Training (DSAT) process (Figure 70), supported through the development of doctrine and implemented through strategic learning advisors. Within the military, each of the services has its own Educational Training Service, accountable for implementing the learning doctrine, which regularly share ideas and practices to increase learning and innovation. Using a systems approach, a requirement is reviewed, a learning needs analysis is conducted, which leads to the design of a course framework, incorporating key learning points and learning outcomes. This framework is then developed to deliver the required end-state, piloted, reviewed and, if required, amended before it is signed off.

Figure 70: The DSAT Process Source: MoD

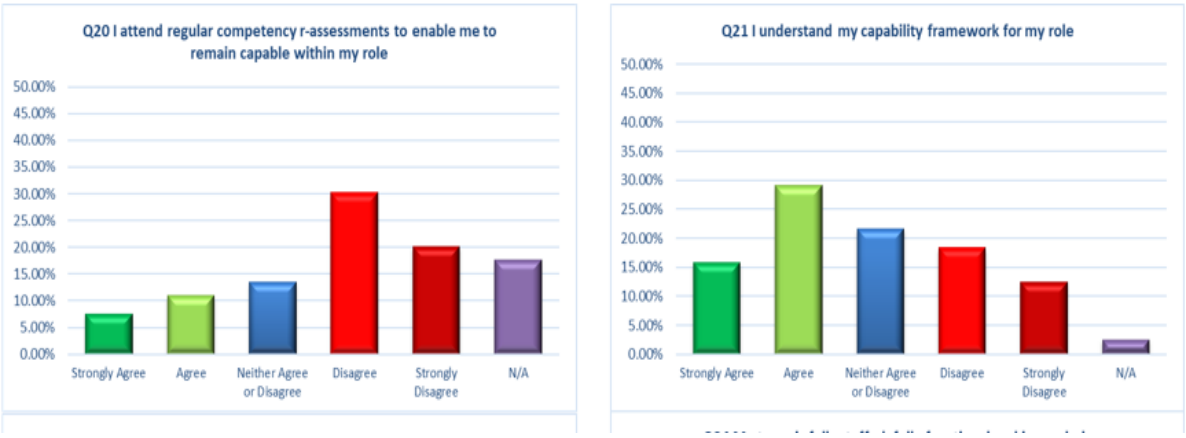


Figure 71: Competency Management Effectiveness Within Industry Source: Author

This is not the case with the rail industry. Rather than a clear career progression that is punctuated with training and development events, the training approach is fragmented and not applied effectively across the organisation. Within both the Operations and Strategic Planning departments there exists training for safety critical roles that are track facing. The key training events for Station Staff were not fit for purpose, while within the strategic planning process there were no training or competency frameworks for the customer teams. At managerial level competency frameworks were also not well understood, as reflected in the findings in Figure 71. The questionnaires for both the resilience and planning audiences

[590]Sheffi Y., Building a Culture of Flexibility, *World Trade Magazine*, December 2005, p.2, available at www.globaltrademag.com, accessed 20 Jun 2017.

clearly articulate issues around the quality and quantity of training that is offered and the fact that the industry has split technical and soft skills training, rather than building complementary training events.

Figure 72: Continuous Improvement Process source: Author

Talent management also sits within this domain, which is important to the development and growth of the organisation. Within the military, due to the nature of the tasks that personnel are involved in, personnel are trained and educated to do the job of their line manager as well as their own. The effects of this are two-fold. It enables the organisation to develop an information push mentality on operations, rather than the operations room having to pull information from the teams. Secondly, if a team leader or commander is removed from duty, individuals have the competence and capability to step up into the role, rather than the organisation relying on the individual possessing a natural capability to assume command. On operations this is built into the process through the activities of training and situational simulation, like the live case study and the exercises observed to support the development of the live case study. This provides the leadership team with a clear understanding of what gaps exist within the team, and how to develop individuals to address those gaps. This process is supported by continuous improvement frameworks and shared understanding, which is obtained through the processes of war-gamming plans, after action reviews and extensive communication frameworks (Figure 72).

The capability of the military to operate in a Joint formation is a key strength in building operational resilience. The military develops resilience through a systems approach to the task, aligning various specialist units to deliver a collective team effectiveness. This ability to generate and re-generate force packages to suit the task at hand enables effective use of limited resources, increases capability and sustains resilience to conduct complex operations. Effectiveness is maintained through a detailed framework of continuous improvement activities, underpinned by comprehensive communications, intelligence and analysis, via the After-Action Review (AAR) process. The process is initialised during the development of the activity plan, not on completion of the event. This allows for refinement of the activity, risk mitigation and the identification of potential areas of observation for the process, supporting the development of innovation and wider organisational research programmes through identified lessons. The intelligence that is captured, along with the impact of the current situation, can then be utilised to build a business case for taking the research or innovation idea forward (Figure 72).

This process supports research by Argyris into the way individuals use learning skills in the art of decision-making, applying observed information, processed via their own experience and knowledge, to create a response to the situation they are faced with. He noted that during decision-making at a low-level, information was readily fed back and challenged by individuals prior to them deciding, whereas the more important the decision, the more barriers there were to information feedback.[591] By conducting the feedback sessions at different levels (Figure 73), it limits the impact of group think, increasing the honesty of the feedback and effectiveness of the process, reflecting the observations of Blanco, Lewko and Gillingham.[592] Increased review and analysis of events generates a higher level of obtained information which can then be fed back into the organisation to improve current processes, or design new processes.

Figure 73: Stages of Organisational Learning Source Argyris

The evidence gathered from the personnel within the industry case study organisations did not reflect that this was occurring within the railway. In both the operations and strategic planning functions, there was not a strategic talent management framework as in the military. While a junior officer or soldier can have a clear timeline of career and required courses to support their development, this was not replicated within the rail industry. The talent management framework was not present within the Strategic Planning function, with a limited level of managerial development, training and education being highlighted within the questionnaire responses. This was evident in how the individuals within the department reflected the level of support and engagement by their line managers in their personal development. There was a clear image of limited support, development and management of the performance objectives for the teams within the function, (Figure 74).

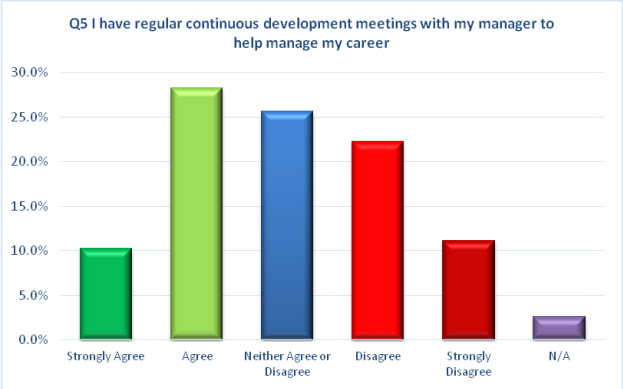


Figure 74: Level of Development Support Within the Strategic Planning Source: Author

[591]Argyris, A., `Single-loop and Double-loop Models in Research on Decision Making', *Administrative Science Quarterly*, 1976, p.367.
[592]Blanco J., Lewko J.H. and Gillingham D., `Fallible Decisions in Management: Learning from Errors', 1996.

There was also concern about the level of managerial training and accountability of managers for their decisions (Figure 75). This graph represents the impact of not having a talent management framework in place, with a clear understanding of how to manage and develop the personnel within the department to build and sustain capability when faced with severe disruptive events.

Figure 75: Managerial Accountability Perception Source: Author

Within both railway functions there did not exist a training and development process as rigorous as the DSAT framework. The training within the planning function was mainly focussed on the technical skills of planning and not the supporting soft skills required when working with people, often in difficult or pressurised situations. This impacted on the quality of the training delivered as there was no detailed learning needs analysis in place (Figure 76). The material developed was based on what current planners and their line managers deemed required from planning staff, with no corporate governance or assurance applied to the quality of the training material.

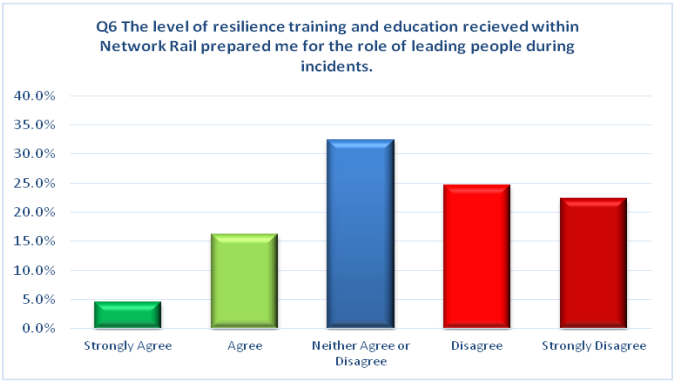


Figure 76: Level of Readiness In Management Teams Source: Author

The approach in the Operations function was different, with more emphasis on the need to develop the correct approach to managing incidents effectively. Using learning specialists that were present within the company, the Operations function directed that a role and learning needs analysis be conducted prior to the development of the training course. Behaviours and soft skills were woven into the incident management training solution, with a Competency Development Group (CDG) overseeing the process and providing a level of assurance and governance around the development process, like the DSAT framework. While this was for the track focussed element of the Operations function, the

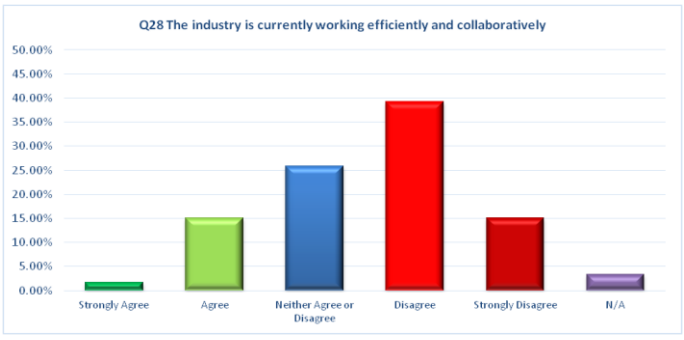


Figure 77: Level of Industry Collaborative Working. Source: Author

Station facing elements were not as thoroughly developed. Within the incident management framework, the RIO, responsible for responding to train incidents, would receive five days of formal training, three of them in a joint environment with the emergency services. A SIO, the station equivalent, received a 5-hour briefing and presentation on their role. To place this into context, the RIO would manage a train crash site with approximately 1000 personnel in a large-scale event; a SIO would be responsible for the evacuation and management of a large-scale London train station, with an average passenger footfall of 4000 - 6000 per hour, depending on the time of day. While the processes were in place, they were not evenly applied, creating different levels of capability within teams, resulting in staff being under-prepared for managing a disruptive event (Figure 77).

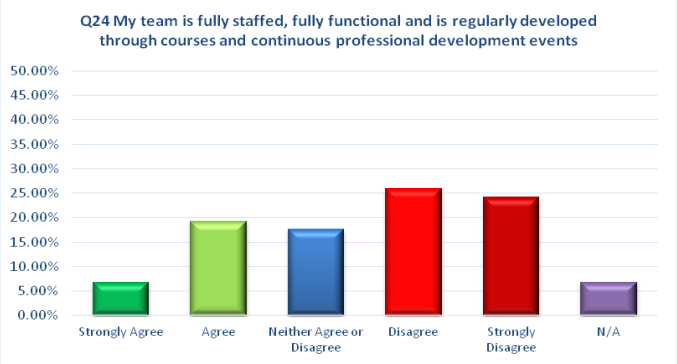


Figure 78: Team Resourcing and Development Within Planning Function. Source: Author

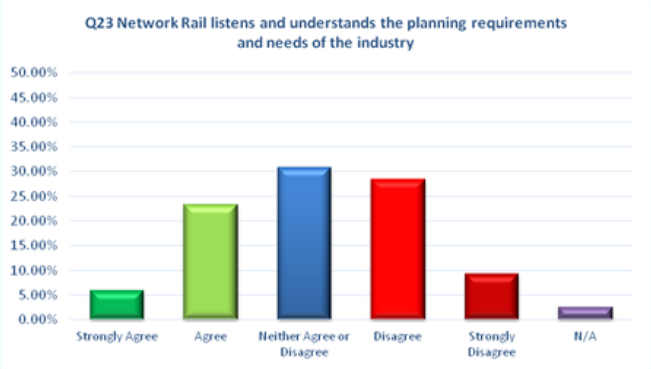


Figure 79: Effective Delivery of Industry Planning Requirements Source: Author

Developing organisational capability requires collaborative working with stakeholders, both internal and external. The two railway functions analysed displayed different levels of effectiveness in building a collaborative way of working. Within the Operations department and, potentially due to the nature of the role when working within disruptive event situations, the feedback was quite positive in the approach undertaken. This reflects the joint training with the emergency services, the regular working practices with the British Transport Police and the fact that the incident management role functions on collaborative working and team response.

This was not the case within the Strategic Planning department. The respondents indicated that there was a poor level of collaborative working within the department (Figure 78), symptomatic to the evidence seen around the lack of talent management and leadership development. The questionnaire responses reflected teams that were undermanned and with limited team and personal development opportunities, a situation which affects the resilience capability of the team itself.

The respondents also reflected on the level of awareness of the organisation on the delivery of its capability to its stakeholders, reflecting that in the opinion of the planning community, the organisation was not listening to its stakeholders or delivering what was needed as an industry. It was their opinion that it was not functioning effectively. These results reflect an element of the organisation that is

struggling to develop its internal resilience, failing to invest effectively in its workforce and is operating in siloed teams (Figure 79). The impact being, in the opinion of its own staff, that it is failing to deliver to its customers and not working collaboratively with the rest of the rail industry. These results, obtained from the various audiences delivering the requirements for the organisation, either in the Operations or Strategic Planning departments, indicate concerns within the effectiveness of the organisation's management of its key resource, its workforce. The impact of poor workforce engagement, development and management leads to several key issues with the delivery of the company's requirement to provide an effective timetable.

The crisis in May 2018 was the manifestation of these issues, and the failure of the industry to work collaboratively and when paired with ineffective leadership, created a black swan event. This resulted in the loss of trust in the rail industry by passengers and the instigation of a government led review of the end to end railway industry. Having reviewed the various Organisational Resilience factors identified, the summary will pull out some key observations, which will be carried forward to the next chapter for the development of the ORM3 framework.

7.7 SUMMARY

The comparison of how the military and industry have developed their respective resilience capabilities raises some key areas for discussion, which have been reflected in the previous sections. Across both organisations, the importance of having a strong strategic core is evident. For the military the development of the correct culture to deliver the vision is part of its preparation for deployment onto operations. The cultural change process was implemented over an 18-month period through education, training and development events. The leadership teams were fundamental in this, setting the direction of travel and held accountable for the organisation of applying the capability during the operational deployment on completion of the preparation phases. Deeply embedded within the change process was the alignment of multiple value systems from the various units into one clear value system for the organisation.

The railway infrastructure manager also possesses a deep rooted cultural core, built upon the values of the industry and the journey it has been on. Chapter 5 highlighted issues around the leadership and cultural impact, with industry reports raising concerns over empowerment and management development. At the strategic level, there is an apparent gap within the leadership at industry level. Reports from various strategic and academic bodies have noted that the government and ORR are not providing clear strategic guidance to the rail industry. Politically, there is an instability around which strategic model the railway can utilise for long term strategic planning due to the diametrically opposed values of the two main political parties when in government.

Failure to provide an effective strategic core critically impacts on the capability of the organisation. This is evident for the military in the Iraq campaign where there was a poor level of strategic leadership,

incorrect culture and no clear end-state. For the railway, the example of the May 2018 timetable crisis highlighted a lack of strategic collaboration and leadership across the rail industry.

For both case study organisations, a clearly documented assurance framework, supported by the right practices and procedures, was key to enabling the organisation to build and maintain its awareness of the volatile and dynamically changing environment within which it operated. This assurance is fed by the business intelligence capability; the more effective the information gathering and analysis teams, the more the organisation is aware. This enables the teams responsible for the management of disruptive events and preparation planning to be pro-active, rather than re-active. The military have built processes and train regularly for these situations, empowering junior leaders to make decisions on the ground, based on the intelligence available at the time. The incident reports and research evidence has shown that this is not the case within the rail industry. There is still a training gap, which results in an increasing skills and capability gap across the organisation. The review of the incident management courses identified a significant capability gap between similar roles, and a lack of strategic leadership development for managing complex events. While the military develops the capability of the individual regularly and educates them to be able to operate effectively at the upper command level, this practice is not regularly taught and employed in the rail industry. For the military this provides a pro-active mentality through information push; for the rail industry it is still more aligned to an information pull approach.

The effectiveness of staff development, collaborative working and the delivery of planning requirements are critical for an organisation to survive within the modern business environment. The findings noted that there are several challenges that face both organisations within this area, though the military clearly invests more time, resources and energy into the development of its staff capabilities, thus providing a more effective approach to organisational resilience and agility. This is explored in more detail in the next chapter, which develops the ORM3 framework and the various components within this framework.

CHAPTER 8: DEVELOPING THE ORGANISATIONAL RESILIENCE MATURITY MODEL

8.1 INTRODUCTION

Chapter 7 has analysed the findings of the research conducted across the military and industry case study organisations, identifying the key components that each of the organisations relied on, or struggled to develop, in order to build and sustain their resilience framework. The review of the information captured from the various research workstreams enabled the designing of a framework of six key areas. These areas were:

- Culture and strategic leadership;
- Organisational Assurance;
- Organisational Agility;
- Organisational Planning;
- Organisational Governance and Structures; and
- Organisational Development

These six components provided the strategic framework for the initial consideration of what the ORM3 framework would be required to deliver. The framework, when completed, would be required to enable an organisation to effectively map the various activities that it was conducting within these six component areas. The ORM3 framework would require the ability to be easily applied and understood, but rigorous enough to deliver a mechanism that enabled the senior leadership to understand the current situation of the organisation, the challenges being faced and the areas that require development. To be useful to the senior leadership team, it would also need to provide guidance on assisting them in developing the organisation's strategic business plans to help improve and sustain the resilience of the business.

One of the more interesting aspects of the research was that the level of resilience capability of the organisation relied not on just the technological systems or processes in place, but also the level of empowered leadership, the organisational vision and the type of culture that existed within the organisation. These intangible elements created a core to the organisation that provided either strength, or weakness, to the organisation during times of difficulty and disruptive change. A second finding was the importance of informal networks and communication channels that managed to keep information flowing and the systems functioning, often putting into place work around activities to maintain a reduced capability during disruption. In the military live case studies, these observations, aligned to a strongly defined and understood vision, enabled a high level of devolved decision-making and leadership, maintaining organisational capability even when the central leadership was disabled for a significant duration.

It was observed that tested organisations that already possessed a strong risk management process in place, managed as part of its planning process, also possessed a strong continuity framework which was delivered through a "contingency operations" planning team. It also had a crisis management team, or the "Principal Planning Group" (PPG), assigned, with a decision-making hierarchy, for managing any unfolding crisis. What the military live case study demonstrated was that even though an organisation may have a strong process for managing disruptive events in place, without effective leadership that can keep pace with the dynamically changing situation, and maintained situational awareness, the process failed. The situations that they faced were shaped to challenge their current way of thinking. The events were complex, unique and information flow was limited; the processes that they had developed were based on information rich situations with time to analyse and contemplate potential actions. These events forced the teams to adapt their approach and build their resilience while under pressure to deliver.

The historic military case studies clearly identified the strategic impact of poor leadership, an incorrect culture and the need for a clear understanding of the organisation's vision to align decisions against. These findings are not new; other researchers into the area have also noted the impact of poor leadership or culture on the resilience capability of an organisation.[593] However, this research has taken these findings, along with current thoughts on building resilience, and added to the knowledge through the development of the ORM3 framework, to assist industry in better understanding what their level of resilience is, as well as understand their internal vulnerabilities.

Observations of the military teams during the live exercises also noted the level of preparedness they invested in prior to conducting the various activities. Both the industry and military case studies noted a level of planning, using various methodologies. The military utilised the Combat Estimate, a militarised version of the planning cycle, while industry sought to utilise an adapted version of the Managing Successful Programmes planning framework. Comparing both organisational planning teams, there was far greater latent knowledge within the military planning team than the industry team. There were several factors to this:

a. The military team, consisting mainly of officer (middle managers) and senior non-commissioned ranks (front-line managers) were practiced and experienced in the use of the planning tools under pressure in a complex environment. The industry team has various levels of experience and knowledge of the planning tools.

b. The military teams were utilising a tool that was standardised and familiar to all members of the team – the process remained constant, it was the level of detail within the information that increased depending on the seniority of the headquarters. This provided a core level of

[593]Seville E., Brunsdon D., et al, Building Organisational Resilience: A New Zealand Approach, Resilient Organisations Research Programme, 2006; Boin A and McConnell A., Preparing For Critical Infrastructure Breakdowns: The Limits Of Crisis Management and the Need for Resilience, *Journal of Contingencies and Crisis Management*, Blackwell Publishing, Volume 15, Number 1, 2007, pp.50-59.

understanding the process, as individuals understood the steps to be taken. The industry team did not demonstrate a similar level of familiarity with the tools that they were using. This was caused by members having little experience in the framework, having used different frameworks, not understanding the various stages, and a limited level of training and practice within the planning process.

c. For the military commanders, at all levels, there were bespoke leadership development programmes invested in by the organisation, ranging from 4 weeks (20 days) up to eight months (160 days), depending on the seniority of the individual, that focussed on key aspects on planning, information management, team management and operations in complex situations. Within the industry teams, there was nothing equivalent to what the military delivered. The maximum leadership offering was 11 days, distributed over a six-month period for the senior members, with the other members receiving between 2 – 4 days project management training.

d. The military headquarters, as part of the planning process, conducted various levels of alternative analysis and wargaming during the planning process, provided several observations and false assumptions that may have led to failure. The integration of this testing approach, allowing consideration of risks, issues, impacts and potential contingency planning requirements was not apparent in the planning processes of the industry team. A review of one programme within the industry identified a failure to apply any of the planning framework at the initiation of the programme, eventually leading to programme failure and significant financial impact. Review of the industry operations team identified that there was also no core planning framework in place for managing disruptive events; a review of the initial training also identified a gap in teaching the incident responders in the ability to effectively plan response and recovery activities, relying on individual expertise or waiting for the arrival of the emergency services to take control, by which time the situation could have escalated.

8.2 REQUIREMENT FOR A RESILIENCE FRAMEWORK MODEL

The benefit of Organisational Resilience is not only applicable to the military or industry; the UK higher education sector is also experiencing a decline in its resilience capability and legitimacy within business research. Research in 2005 into business schools noted that they were failing to deliver practical expertise and advice to their students; they were too focussed on the “scientific” approach, treating business as a transactional environment, rather than the complex fluid situation that exists in reality.[594] Observations and anecdotal evidence suggest that the business sector is concerned that the academic community are too focussed on developing the “sterile” approach to build a resilience framework, rather than understanding the complex and wicked problem environment that businesses actually operate within. At a recent conference on the subject of Organisational Resilience, it was noted that there had

[594]Bennis W. and O’Toole J., How Business Schools Lost Their Way, Harvard Business Review, May 2005 Issue, available at https://hbr.org/2005/05/how-business-schools-lost-their-way, accessed 10 December 2019.

been a failure of the UK academic sector to work with industry to build an effective body of knowledge around Organisational Resilience.[595] This is forcing industry to develop its own approaches from painful errors in judgement, failures and experiential learning, based on practitioner knowledge rather than scientific analysis, or relying on the work done by international consulting firms. In 2012, Professor Wilson noted that although the level of University-Industry collaboration was increasing, there was still a long way to go especially in supporting student transition into business, engagement with small businesses and localised networking hubs.[596]

Unlike New Zealand or Australian institutes, which have dedicated elements supported by the academic sector, in 2018 the UK does not have such an established framework, though steps are being taken in the right direction through the development of academic courses at the UK Resilience Centre (Wolverhampton University), Coventry University and the New Buckingham University. However, this oversight of UK academia to support the business sector within this critical area of business development has contributed to the current limited level of understanding in the development of organisational resilience capability.

In 2017 a report across the UK into the health of small and medium enterprises within the UK noted that there was real concern over the lack of managerial skills within the workplace. When broken into regions, this varied from 26.5% (North East) to 39.7% (London), while the level of technical skills was significantly lower.[597] Research also indicated that in 2016 there was no apparent impact to the growth of the Small or Medium Enterprise environment by university research or engagement, with concerns that the research a university is undertaking may not benefit the local businesses.[598] The report did highlight that where universities invested into “business hubs” supporting the local businesses in the area, it increased the performance and resilience of the organisations, though it was noted that this mainly happened in the South, or Scotland.

In 2016 there was also a level of concern raised over the capability of several academic establishments’ abilities to manage their responsibilities to their students.[599] In 2017 concerns were raised over several universities unable to manage their own levels of resilience; concerns over poor support services being provided to student communities,[600] limited level of understanding the need to build personal resilience of individuals, while in 2019 the failure to manage budgets, student recruitment and establishment growth models in several universities was released in a report by the Universities and College Union.[601]

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[595]Price K., The Resilience Association Congress, London, 10 October 2019.
[596]Wilson T., A review of Business-University Collaboration, Government Report, 2012, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/32383/12-610-wilson-review-business-university-collaboration.pdf accessed 10 Feb 2020.
[597]Kelly S. and Mulgan G., *The State of Small Businesses*, Business Research Report, Sage and Nesta, Nesta Ltd, 2017, pp 40-41.
[598]Ibid, p.44
[599] Heath A., Too Many Universities are Failing Their Students, The Telegraph, 17 August 2016, available at www.The Telegraph.co.uk.
[600]McIntosh, E and Shaw J., Student Resilience: Exploring the Positive Case for Resilience, Unite Students, Bristol, 2017
[601]Rhodes D., Number of English Universities in Financial Deficit Increases, BBC News, 08 May 2019, available from www.bbc.co.uk

The research has raised concerns over the level of Organisational Resilience within industry, noting in Chapter 4 the business case for developing a resilience culture. However, as the above reports and evidence have shown, there is a wider utility in having a Resilience Management framework in place within the UK. The following sections will discuss the development of the ORM3 framework, and how it can benefit organisations in the future.

8.3 SETTING THE FRAMEWORK CONTEXT

With the findings above clearly demonstrating that there were strategic and tactical activities that could impact the effectiveness of an organisation to build and sustain its resilience, the challenge was to build a robust framework to reflect that. It had to be easy enough for the workforce to understand and use, holistic in its approach to capture the organisation as a system of systems rather than developing silos, and informative enough to provide the correct level of analysis and direction to the senior leadership team to assist in their decision-making and planning. The initial six areas, identified from Chapter 7, provided the structure around which to design the ORM3 framework. Reviewing the research from the case studies, interviews, observations and analysis of the research from multiple sources over the last decade, there were multiple factors identified that impacted on the resilience of an organisation. These were:

Identified Factors from Research				
Effective Risk Management	Leadership	Effective Incident / crisis Response	Business Continuity capability	Talent acquisition and management
Research and innovation	Systems thinking	Adaptability	Culture	Organisational Learning
Threat awareness	Assurance mechanisms	Post event reviews	Effective Communication flow	Stakeholder management
Understanding hazards	Correct training and preparation	Management of silos	Effective Change Management	Corporate Social Responsibility
Corporate image	Communication frameworks	Organisational vision and strategy	Effective planning	Correct organisation structures
Information gathering approach	Staff retention activities	Knowledge management	Staff engagement and empowerment	Continuous improvement
Promoting creativity	Intelligence gathering and analysis	Insurance mechanisms	Licence / operating requirements	Consequence management
Timely decision-making	Reporting mechanisms	Organisational Governance	Resources	Relationships
Exercising	Recovery Priorities	Agility / flexibility	Integration frameworks	Technology management

Table 21: Organisational Resilience Factors. Source: Author

These 45 factors, created from cross-referencing of the various research documents discussed in Chapter 2, create a footprint of what researchers have identified since 1976 when Turner started analysing the causes of incidents, and Argyris analysed how organisations learned effectively. In the

21st century the works of Stephenson, McManus and Somer et al, looking at resilience, leadership and building organisational capability also helped shape the approach that the model should take.

8.4 ORM3 FRAMEWORK WORKSTREAMS AND ELEMENTS

This section presents the results of the analysis of the factors raised in Table 21. Each workstream that was identified in Chapter 7 is then broken down into elements to provide a mechanism for organisations to measure their Organisational Resilience capability; section 8.5 will then discuss placing them into the ORM3 framework. Within this section, each of the definitions of the designed components, based on this research, are indented and italicised for the purpose of the reader to clearly identify, while attached at Annex G are examples of the Strategic Core Workstream, to assist the reader in visualising how the framework appears.

8.4.1 Strategic Core Workstream.

The strategic core workstream refers to the core elements that set the context of the organisation, defining its very ethos, character and ways of working. These elements, if incorrectly set, can have a critical impact to its survival.[602] A poorly defined vision or strategic outlook can cripple an organisation's growth, and the process for developing this is often badly taught in business schools.[603] If the senior team apply the incorrect leadership style, it can result in talent leaving the organisation and poor strategic decisions being made, especially when under pressure during disruptive change and in crises.[604] Within the Strategic Core, there are three elements. These are discussed below.

8.4.1.1 Corporate Culture Maturity

As noted in the previous chapter, culture is a core element of the organisation, which can result either in the organisation becoming flexible, or unable to change or adapt to the environment that is changing around it. The result of beliefs, myths, and organisational history, as well as the style of senior leadership, the corporate vision and the various strategies and objectives set, an organisational culture, once set, may take a significant period to change. The correct culture can super-charge an organisation's performance and attract customers and investment; the incorrect culture can have the opposite effect. The culture can also impact how the various elements of the organisation interact with each other during normal and disruptive situations. It can drive the organisation into a defensive posture, unable to understand the potential benefits of the situation and to embark on a learning journey; it may also result in staff leaving the organisation if the culture is more around identifying blame rather than learning and adapting. The approach to corporate culture is more than just its performance element; it

[602]Sommer et al, Keeping Positive and Building Strength: The role of affect and team leadership in developing resilience during an organisational crisis, *Group and Organisation Management Journal*, Sage publications, Volume 41, Issue 2, 2016. Pp 172 – 202.
[603]Okumus F., Wong KKF and Altinay L., Are We Teaching Strategic Management Right? *Journal of Teaching in Travel and Tourism*, Volume 8, Issue 4, 2009, pp 329 – 350. Available at www.tand fonline.com/loi/wttt20
[604]Wong L., Developing Adaptive Leaders: The crucible experience of operation Iraqi Freedom, *Monograph Papers*, Strategic Studies Institute, US Army, 2004, available at www.calisle.army.mil/ssi ; Cerami JR, Engel JA (eds), Rethinking Leadership and "whole of Government" National security Reform: Problems, Progress and Prospects, *Strategic Studies Institute Conference Report*, Strategic Studies Institute, 2010, available at www.strategicstudiesinstitute.army.mil; Cerami JR (ed) Developing Emerging Leaders: The Bush School and the Legacy of the 41st President, Strategic Studies Institute Conference Report, United States Army War College Press, US Army War College, Carlisle, 2015; Rabey G., The Complexity of Leading, *Team Performance Management Journal*, Emerald Group publishing limited, Volume 11, Number 5/6, 2005, pp 214-220.

focuses on a strong consideration of the various backgrounds of its staff, aiming to create and maintain a just and fair culture, which in turn will drive early reporting and awareness of potential issues before they become incidents.

Culture also defines the underlying approach to how incidents are managed. The research into HROs noted that, although they operated in high risk environments, their different cultural approach to operations enabled them to operate at a very high level of effectiveness. This breaks down cultural silos, developing a culture focussed on safety and reliability, resting atop a learning organisation culture, which leads to a high level of performance. Taking these various observations into consideration, the definition of cultural maturity is:

> *This element analyses the level of maturity that the organisation has when it comes to its cultural approach. A high performing organisation would aim to develop an open and culturally diverse approach to the workplace, supporting personnel from numerous faiths and backgrounds. There would be a drive to build an inclusive and just culture, where individuals feel safe to work, free from harassment and blame. A just culture will also include a safety focussed approach, with individuals comfortable to raise concerns, issues or events and seek to address and learn from them. As an organisation, there is an embedded values and standards framework, which complements the industry and government frameworks. There is also a strong presence of Corporate Social Responsibility, building the organisation's reputation as a fair, just and supportive member of the community. Within the organisation there is a culture of learning, with best practice seen as the normal standard to seek to achieve, while the industry looks to the organisation as a benchmark*.

This definition weaves into the core of the model the critical elements of an organisation's framework. It enables the assessment of the corporate culture on the approaches taken towards staff, performance and safety, the core values that it is based upon, and its approach to the external community. Organisations that do not invest in a culture that promotes learning and openness suffers from poor performance and a negative image; research into the NHS identified that there was a reporting issue driven by the culture of the organisation.[605] Observations from the case studies and interviews from the military personnel, and evidence captured from the questionnaires, highlighted the importance of a positive culture on the effectiveness of the organisation and the performance of the staff within it.

8.4.1.2 Strategic Corporate Vision

This element is focussed on the level of communication and understanding that the workforce and management teams have of the corporate vision, strategies and objectives to enable the organisation to achieve its aims. This element analyses the level of engagement that the senior leadership has given to the various stakeholder groups about what the organisation's key performance objectives, values and direction is. It is also tied to the level of sustainability and whether the organisation is seeking short,

[605]Gray D. and Williams S., From Blaming to Learning: Re-framing Organisation Learning from Adverse Incidents, *The Learning Organisation Journal*, Emerald Group Publishing Limited, Volume 18 Number 6, 2011, pp438 – 453.

medium- or long-term success. From the observations and research findings, there is a key requirement for the workforce to understand the organisational intent and vision; this enables them to quickly identify the key factors that must be maintained at a level of functionality while the organisation is going through a disruptive phase.

For the military, they consider this as the 'Strategic Intent' and ensure all activities link back to this, with teams effectively briefed on how their actions link directly to the vision and strategy being delivered. It would link into the leadership approach and the empowerment of individuals to make decisions through the application of `Mission Command', as well as the culture of the organisation. Observations from the industry questionnaire indicated a lack of understanding across the workforce of the higher-level intent and leadership vision and communication. Taking this into consideration, the definition of this element within the framework is:

> *This element is identified through how well the vision is briefed and understood by the members of the organisation. This can then be tested through how well company and department objectives align to the delivery of the strategic vision. Another indicator is how engaged the staff feel with the strategic vision. Corporate vision is aligned to industry and government strategy, with achievable objectives clearly mapped out to enable the vision to be delivered. The Corporate vision is also linked to organisational cultural framework, social responsibility and presented through business literature, frameworks and activities.*

This definition enables the observation of how the various departments or functions of the organisation also work together to deliver the vision, or whether there are issues around communication, trust and silo working. It links into how effective the leadership consider the importance of the workforce to understand the bigger picture, which, when facing a disruptive event, is critical for team leaders and middle management to make decisions around resources, processes and services to keep functioning when operating at a reduced capability.

8.4.1.3 Adaptive Leadership Framework

This element is focussed on the effectiveness of the leadership framework that is in place within the organisation, and how it impacts on the ability of it to manage disruptive events that force the leadership team and managerial staff, at all levels, to operate outside of the normal parameters of the organisation. Leadership teams have a limit to what they can manage during a disruptive situation and the flexibility of the managerial staff to make certain decisions without needing to seek clarification provides a greater ability to respond and adapt to dynamically changing situations. Boin and McConnell noted that there needs to be greater consideration of the management of major disruptive events. Top down crisis management is not effective when dealing with large scale complex events; contingency planning is required but is also not effective on its own in today's complicated operational environment.[606]

[606]Boin A and McConnell A., `Preparing for Critical Infrastructure Breakdowns: The Limits of Crisis Management and the Need for Resilience', *Journal of Contingencies and Crisis Management*, 2007, pp 52-53.

The effectiveness of the organisation's ability to respond at a strategic level to large-scale disruptive events is dependent on the capability of its senior leadership team. Observations of the ineptness of the response to Hurricane Katrina by the Federal leadership has been noted in several research papers; in comparison, the adaptive leadership approach implemented by the Wal-Mart group provided a level of response that the Federal government failed to deliver.[607] Taking the observations from the documents researched, the live case studies and the feedback from the questionnaires received, the definition for this element within the framework is:

This element examines the leadership framework and the ability of the organisation to develop and sustain its strategy. Within the area there is the analysis of policy and strategy documents to analyse the level of direction within the organisation. This also looks at the type of leadership framework, whether it is heavily devolved, with flat hierarchies, or hierarchical, with pillars of command and control. Leadership training and education programmes, staff development packages, regular leadership tabletop discussions and a multi-agency response understanding to promote the organisation as a leader within its industry setting. This element also analyses the depth of leadership capability across the organisation, and whether it is confined to a few key decision-makers, or there is a level of devolved leadership, providing an agile element to the decision-making within the organisation.

8.4.2 Organisational Assurance Workstream

The first tactical workstream consists of five key components that have been identified as being important to developing the correct level of assurance frameworks within an organisation. An assurance framework provides checks and balances within the organisation, ensuring it is aware of the potential risks, threats and vulnerabilities, and has the correct mechanisms in place to manage the relevant insurance requirements, the understanding of the external environment to help develop the decision-making, effective risk management and understanding what the key recovery priorities are for the organisation. With these frameworks in place, the senior leadership group have a level of awareness over what is occurring within the business environment, the risks to the organisation and, if those risks should result in the onset of a disruptive event, what the key recovery priorities are to enable the organisation to function at a reduced capability to continue to deliver its key obligations. The five elements are discussed in more detail in each of the sub sections below.

8.4.2.1 Insurance

The awareness of insurance within both the case study organisations and the length that it would take to implement business interruption frameworks was limited. For the military personnel, few had considered the topic of insurance until they had been faced with issues on operations when contractors

[607]Horwitz S., `Wal-Mart to the Rescue: Private Enterprise's Response to Hurricane Katrina', *The Independent Review*, Independent Institute, Oakland, Volume 13, Number 4, 2009, pp 511 – 528: Smith D.J. and Sutter D., `Response and Recovery after the Joplin Tornado: Lessons Applied and Lessons Learned', *The Independent Review*, Independent Institute, Oakland, Volume 18, Number 2, 2013, pp 165-188.

failed to deliver re-build projects or programmes. Limited awareness of the legal frameworks required resulted in several interviewees discussing escalating costs of very Quick Improvement Projects (QIPs), as there was a mentality of "just get it done" by the senior leadership. The time delay and obtaining the buy-in of the population outweighed any potential delay that may be incurred awaiting the settling of an insurance requirement. Within industry, there were differing levels of understanding on the time it would take to settle an insurance situation; in some circumstances analysis of projects identified that the reason for delivery failure was not down to the contractor, but to the organisation for not clearly understanding the complexity of the problem it was trying to solve.

An understanding of the insurance capability is a key component of effective leadership and good corporate governance, which was noted in 2010 in a report by the consultancy group PwC in its report on business best practice.[608] For the framework, the definition of the insurance element is:

> *This element looks at how the organisation manages the impact to cash revenue generation, loss of key services and resources, taking into consideration the level of contingency funds currently held, the claiming process and the level of understanding around the availability and capability of the relevant organisations that are used for damage / liability cover. Part of the insurance frameworks is the level of direction for the required security frameworks to be in place to protect key assets and information, and the regular review and update of the insurance policies and impact of loss. Key responsibilities for insurance processes, procedures, standards and guidance documents are clearly assigned, reviewed and managed across the organisation. Within the project / programme / portfolio management domain, the correct frameworks, review practices and assurance mechanisms are in place to provide the correct level of insurance against disruptive events and financial impacts.*

For the organisation, the assessment relies on the level of insurance in place, the various key activities that are covered by the insurance framework, and how it provides the level security to disruptive events. This element also interacts with several elements across the framework.

8.4.2.2 Internal and External Situation Monitoring and Reporting

The second element of the business assurance workstream aims to observe the effectiveness of the organisation at monitoring the internal and external environments. This element McManus did not factor as an individual element within her research, though the work by Stephenson did identify the importance of having the ability to monitor, track and inform the organisation about both the internal and external environments within which the organisation is operating within. Tracking the external environment enables effective development of situational awareness, potential risks and opportunities within the market; understanding the internal environment assists an organisation understanding whether it has

[608]Pricewaterhouse Coopers (PwC), `Corporate Governance: Best Practice Reporting', *Price Waterhouse Coopers Ltd*, London, 2010, p.17.

the ability, processes and resources in place to react effectively, or if there are critical gaps within its structures and frameworks.

This element reviews the level of feedback within the processes that are looking inward and outward and how effective they are in informing the organisational decision-making process. Stephenson noted in her research that this was a capability lacking in McManus's original model, as within a disruptive situation there is the requirement for a constant flow of information required across the organisation to maintain situational awareness. From the industry case studies, the engineering disruptions clearly identified the impact that a poor level of situational monitoring and reporting can cause. Within the military case studies, this was part of the planning process, with the planning teams clearly directed within the process to issue several information updates to the wider organisation. This was then reinforced through the exercising activities distributed within the planning process. Once the initial planning of the response was complete and the team moved into the managing phase of the disruptive event, the monitoring and flow of information became more difficult, This was partly down to the available resources to maintain organisational effectiveness while managing the situation and needing to dynamically plan several contingencies as the situation developed. This required regular updating and review of the situation to maintain abreast of the conditions on the ground. To effectively do this, there is a blend of mechanisms and systems to capture the information, and human input to conduct the effective analysis of the information and convert it into intelligence to assist with the decision-making and resource allocation. HRO theory notes that the effectiveness of the response to a disruptive event relies on how effective the organisation is at managing its situational awareness. With this analysis, the definition for this element within the framework expands on that of Stephenson's:

> *This element looks at how the organisation utilises the business intelligence links that is has both internally and externally to build its situational awareness through effective monitoring and reporting. Effective monitoring and reporting assist the leadership team to build situational awareness and helps track whether the organisation is moving towards its strategic vision. Poor monitoring and reporting impacts on the level of governance and assurance management that is present within the organisation. This area includes the level of compliance within the organisation with key industry documentation, regulator direction and government legislation, policies and directives. Internally, this analyses the level of compliance with organisational standards, frameworks and formal processes and the level of divergence from the official publications; this includes the programme / project and portfolio management domains. Under this element, the organisation would also include the analysis of the socio-political environment it is operating within, as well as current and potential competitors and their market strategies.*

Stephenson's definition focuses on the importance of the reporting and monitoring of the information, and the effectiveness of the human-technical system in doing this. It did not discuss about the requirement of the organisation to comply with the relevant internal and external polices and standards, which may impact on the processes it uses, especially in the case of the military. This element integrates

with several others, providing a system within the organisation for gathering, analysing, distributing and reviewing the gathered information.

8.4.2.3 Risk Management and Planning

A core element of building effective Organisational Resilience is understanding what threats and opportunities exist within the operating environment and how they may impact the business if they come to pass. Although there are elements within the framework that analyse the hazards and vulnerabilities of the organisation, as well as the previous element of situational reporting, these elements only provide parts of the equation. Neither Stephenson or McManus included a defined risk management and planning element within their frameworks, though the primary evidence analysed in Chapter 5 identified that there was a need for a clearly defined risk process within the framework to enable organisations to assess their capability.

Within organisations, risk management is seen as the position where most of the 'security' elements are located, Business Continuity management systems, financial risk analysis, fraud analysis, etc are normally found within the Risk department, which, in the industry case study organisation, sat within the Finance department, underneath the responsibility of the finance director. This highlights a real difference within the two case study organisations; the military placed the risk component of the headquarters within the Intelligence function, utilising intelligence experts to capture information, assess, prioritise and back brief the planning teams on what potential risks that existed. This was conducted at the first phase of the planning phase to respond to a disruptive event, with the identified risks then catalogued, tracked and distributed to the various teams that were impacted for them to employ he required response activity. This approach required the crossflow of information across several different functions to maintain situational awareness.

Such a mature approach to risk management did not occur within the industry case study organisation, especially the Strategic Planning department. Discussions identified individuals in risk management positions without any formal education or training. Within the reports reviewed on the engineering over-runs, one of the clear underlying factors in both reports was the failure to manage risks and understand the consequences. The report into the May 2018 timetable crisis also noted that as an industry there was a poor level of understanding the importance of effective risk management. Based on this evidence, this element is defined as:

> *This element examines how the organisation conducts its risk management procedures and how this informs the wider development of the business continuity planning process. The organisation should also be able to demonstrate up to date, regularly reviewed and tested emergency plans, with key information accurately and securely maintained. It monitors the level of compliance and assurance that is placed within the framework, with working practices, procedures for risk identification, prioritisation, management and reporting as part of this. Part of this framework is the accurate mapping and management of controls for external dependencies that may affect the*

organisation. Also included is mapping and accreditation to the relevant industry / national / international standards.

8.4.2.4 Robust Processes for identifying and Analysing Vulnerabilities

This element reviews the processes that the organisation has in place to identify potential areas of weakness within the organisation and to analyse how that creates an internal vulnerability in how the business operates. Vulnerabilities are those components of an organisation, be it a resource, process or a key decision-making requirement, that, if absent or incorrectly applied, can have a severe detrimental impact to the effective performance of the organisation. This may be the absence of connectivity to a core IT server, or absence of key staff to manage complex machinery.

By being aware of the internal vulnerabilities, organisations can develop robust continuity processes to maintain the basic functions to keep the organisation delivering its key functions. Within the military case studies, this was maintained through the building and sustaining of situational awareness, aligned to an agreed risk appetite, where the commander was willing to allow minor processes to be sacrificed to maintain the critical services functioning. The industry case studies identified a failing in this area, compounded by a limited application of a risk appetite and an understanding of the vulnerabilities due to a lack of a business continuity framework. This materialised during the May 2018 timetable crisis, when it was noted that there were several internal vulnerabilities that existed. With this evidence, the description of this element in the framework is:

This element studies the capability of the organisation to identify key components of the organisation, either resources, services or infrastructure, and the mechanisms in place to avoid the impact of a disruptive event which affects these internal structures. This element includes the analysis of man-made and natural issues, such as conflict, climate change or air pollution. Within this element the organisation has a good understanding of systems modelling and demonstrates an understanding of how system failures can affect other systems within the organisation. This is closely linked to an effective business continuity framework and regular reviewing and testing of recovery assumptions, mapped against identified vulnerabilities.

Studies into HROs noted the focus on potential vulnerabilities and addressing potential hazard factors before they became an incident. [609] Pidgeon, Boin and van Eeten noted that HROs are focussed on developing the processes that can be used to identify and rapidly address vulnerabilities; these processes are included in risk management or business continuity mechanisms. These factors may be natural occurring or man-made, or activities that may destabilise the smooth functioning of the system.

8.4.2.5 Recovery Priorities

[609]Pidgeon N., `Complex Organisational Failures: Culture, High Reliability and Lessons from Fukushima', *The Bridge*, National Academy of Engineering, National Academy of Sciences, Washington, Volume 42, Number 3, 2012; Boin A. and van Eeten M. J. G., `The Resilient Organisation', *Public Management Review*, Routledge, Taylor and Francis Group, Volume 15, Issue 3, 2013, pp 429 – 445.

A fundamental component of building organisational resilience is understanding what the minimal level of services are that you need to deliver in order to maintain effective operations. By clearly defining the minimal level of service, an organisation can then identify its key recovery processes, be they the delivery of services, the provision of resources, or maintaining the capability to deliver key processes or decision-making activities. This is heavily linked to an effective business continuity system, which the industry case study organisation did not have in place, therefore it struggled to clearly articulate what the key recovery priorities where. This was evident in the 2008 and 2014 engineering overruns, and the impact caused by the May 2018 timetable crisis.

Within the military case study organisations this requirement was better understood as it was part of the decision-making process, effectively analysed through the combat estimate analysis process, which was used to identify the minimal resources and activities needed to deliver the various tasks. The case studies did note that though the information was available, some commanders chose to ignore the recommendations, thereby introducing risk of failure into the process by seeking to trade one risk off against another. When questioned within the interviews or the questionnaires, it was apparent that while both the military and industry case study organisations had some understanding of the impact of not having the correct resources in place, or understanding the minimal recovery priorities in place, the level of understanding around consequences was limited. This element is defined as:

> *This element looks at how well the organisation understands what its key functions are, and how quickly they need to resume service after a disruptive event. This analyses whether the organisation has a clearly defined strategic recovery framework in place, which is communicated across the organisation and supported through tactical and operational processes, procedures and staff education. The use of a business continuity framework, the ability to function in dispersed locations, and staff awareness of key priorities and minimum recovery times are all part of this element. An understanding of the impact of failing to meet the minimum recovery timelines is also expected in the areas of people, facilities, technology and equipment. It is informed through gathered intelligence and understanding the organisational risks, capabilities, vulnerabilities and potential threats and trends.*

Discussions with personnel from both the military and industry case studies identified that the organisations were more aware of the required levels of recovery priorities for the locations that they were operating from, though when faced with the complexity of managing disruptive events over several locations, assumptions were made, with the planning teams trading information for response time. This sometimes resulted in incorrect decisions or responses occurring, resulting in an actual increase in the time the organisation took to respond effectively to a disruptive event.

8.4.3 Organisational Agility Workstream

The second tactical workstream of the ORM3 framework was focussed on the ability of the organisation to be aware of its surroundings and manage the impact of a disruptive event, minimising the impact and

protecting key resources and services. It enables the review of how effective the organisation is in building and maintaining its situational awareness, the potential threats that exist and the impact they could have, and whether the organisation has the correct security frameworks, such as crisis management, business continuity and disaster recovery, in place. It also enables the assessment of how effective the decision-making by the organisation is when faced with a disruptive event, and whether the organisational culture impacts on the decision-making.

8.4.3.1 Hazards and Consequences

The analysis of the literature in Chapter 2 and the observations taken during the live case studies of the military teams highlighted the importance of understanding the first and second order consequences of various hazards that they may encounter. Likewise, examination of the various reports into the industry case study identified a lack of consequence understanding and management; the over-run of engineering works in 2008 and 2014, the impact of poor decision-making and large scale change onto the timetable in May 2018, the delay in the effective roll out of the safety cultural change programme due to limited frontline staff engagement and investment in learning programmes that were learner centric. The various industry reports indicate that the level of consequence awareness was limited during these events. Likewise, the failure of NASA to understand the consequence of a perished “O ring”, or the impact of ice striking the heat shield on take-off resulted in the loss of two Space Shuttles.

What was apparent during the observations of the military live case studies, and the conversations with the interviewees, was the level of understanding of how many potential hazards existed that could impact on their approach. It also noted that there were breakdowns in the communication between the planning teams, the information collection teams and the risk management teams, which resulted in several assumptions being made which impacted on the overall effectiveness of the plan. This operational silo mentality, created through the pressure of trying to function under pressure to respond to a dynamically changing environment, is in itself a hazard to organisational effectiveness. The definition for the element is:

> *This element is identified through the level of knowledge the organisation has of key internal and external threats, issues and potential crises that it may face within the working environment. Key documents, reporting frameworks, practices and policies, supported through staff briefings and engagement with other organisations who may move to assist in a disruptive event would also be expected. A clear understanding of the consequences of the hazards / threats and their management should be present, which requires detailed knowledge of the current organisational vulnerabilities and capabilities.*

By clearly understanding the hazards that the organisation potential faces, along with the consequences if these hazards cause an impact, the leadership and workforce can put into place frameworks and processes to minimise the immediate and long-term impact of a disruptive event. This factor links

closely with effective risk management, business intelligence, environment monitoring, corporate security frameworks and vulnerability identification.

8.4.3.2 Connectivity Awareness

This element is focussed on the capability of the organisation to understand the various key internal stakeholders and other parties that it works with, and the impact of losing the support, engagement or working agreements with them. Within the military live case studies, the planning teams had a good understanding of their primary stakeholders and military organisations that they were working with; however, when pushed further by the observation team, the organisational planning team were unaware of the second or third level internal stakeholders that provided key elements of the supply chain and/or services that they were required to consider when responding to the disruptive events within the exercises. When discussing the issue in the after-action reviews, it was noted that there was an assumption that this information would have been identified in the risk assessment and planning phase, supplemented by the business intelligence and information collection frameworks. The reviews demonstrated a critical gap in the level of cooperation among the teams, which was resulting in the development of an incomplete operating picture being developed.

Within the industry case study organisation, a similar pattern was occurring, especially within the Strategic Planning department. Projects and programmes were being initiated without a clear understanding of the size or importance of the various internal stakeholders and their supply chains. Poor communications and engagement resulted in several major projects and programmes failing to deliver their stated outcomes, with one project failing to deliver any output, though it had lasted for 18 months and spent upwards of £2million. With this evidence, the definition for this element within the framework is:

> *This element is internally focussed, seeking to understand how well the organisation is connected and engaged with the internal workforce and key internal stakeholders. The level of cross-departmental engagement and collaboration, as well as the management of the company's supply chain, is captured within this metric. This analyses the number of channels and mechanisms used, the type of media, the time for messages to be released around an event and the level of resource and investment provided. This element also looks at the number of staff, their development framework and the number of gaps within communication teams across the organisation, and the impact it causes.*

In theory it should be easier for organisations to maintain internal stakeholder engagement and information flow to the various parties, yet within the analysis it was noted that both organisations struggled to manage this effectively, though the military had a more capable approach. The research articles noted that in times of major disruption, many organisations struggled to maintain an internal and external communications framework to the interested parties or failed to understand the various capabilities that existed within their staff. Seeing the complete picture is critical in building a detailed

situational awareness for the organisation; understanding that organisations are a system of systems rather than multiple silos is a key skill for the high-resilience organisation.

8.4.3.3 Corporate Security Frameworks

This element focuses on the development and maintaining of multiple tactical frameworks to build an organisation wide security framework to respond, manage and recover from disruptive events. Both the case study organisations had various mechanisms in place, though the military organisations had a more mature approach to maintaining the various frameworks in place. Captured within this element of the framework are the tactical activities that an organisation should have in place to manage the onset of a major disruptive event. This would include the presence of a business continuity management system, crisis management capabilities and disaster recovery capabilities. A key function of an organisation that has a high level of resilience is its ability to manage and adapt to a complex situation, being able to rapidly utilise key resources and processes to minimise the spread and impact of a disruptive event. Through the various research activities, the definition of this element is:

> *This element examines the internal security frameworks that exist within the organisation in order to protect it from the effects of a disruptive events. Key aspects within this area are the presence and regular review of emergency planning, disaster recovery, incident response and business continuity frameworks. Clear understanding of how the threats may impact and the response required is present within the staff, with regular updates and publications available. This element analyses the level of trained and competent individuals within the organisation, the accuracy of their job descriptions and competency frameworks. It also assesses the training frameworks in place for this element and the effectiveness of the reporting. A key measure is the number of incidents that breached current security frameworks and the relevant outcome. Also included is mapping and accreditation to the relevant industry / national / international standards.*

Organisations that have this ability understand the need to be able to rapidly move from normal operations to disruptive event management, while maintaining daily operations at as near as normal operating level as possible, accepting the requirement to re-task key resources to manage the disruptive event response. The evidence demonstrated during the analysis of the research articles in Chapter 2 and the primary resource sources noted that the military organisations had a far better understanding of contingency planning, resource allocation and dynamic decision-making processes. This was supported though effective risk management, understanding of hazards and internal vulnerabilities, and situational awareness of the environment. Review of the events used for the analysis of the industry case study identified major issues with its effective management of disruptive events through its corporate security mechanisms; the analysis demonstrated a fractured response to incidents, an absence of a business continuity system and poor understanding of hazards and their consequences. This resulted in the organisation being affected by several major disruptive events.

8.4.3.4 Adaptive Decision Making

This element analysed the level of adaptive decision-making capability and how it was developed and utilised within the organisation. Research into decision-making, especially during crises, notes that the amount of time required to make the required judgement is often sub-optimal. Individuals are often faced with the dilemma to take decisions without a full information picture, often having to trust their judgement and previous experience.[610] Complex disruptive situations require individuals to adjust how they manage the decision-making; these types of events require the acceptance that normal thinking tools and processes do not apply.[611] This research indicates that based on the potential factors and complexity of the situation, along with the need to be comfortable taking critical decisions without full situational awareness. Observations within the live case studies identified that the more experienced individuals took steps to eliminate potential factors, narrowing down the key issues that they were dealing with. Based on what information they had, atmospherics, previous intelligence on the situation and their own experience, they would make decisions to act, seeking to maintain the momentum, accepting that in a complex situation their actions would change the shape of the disruptive event. As they placed their decisions into action, they initiated teams to start developing contingency plans, based of courses of action that focused on most likely, worst case and best-case outcomes of their decisions. The research into the industry case study organisation, in both the engineering over-runs and the May 2018 timetable crisis saw the situation deteriorate as individuals sought to obtain more and more information prior to them making a critical decision. This desire to make the best possible decision utilising as much information as possible resulted in the disruptive event becoming more established and harder to control. Based on this analysis, the definition for this element is:

This element analyses how decentralised the decision-making within the organisation is and whether it supports the core adaptive leadership framework. Evidence of empowered workforces, devolved decisions and the sharing of managers' intent and key objectives fall under this element. Key to this is evidence of critical thinking and evidence-based analysis, providing the construct for informed leadership decisions. This observes the accountability for decisions, how informed the decision-makers are, the management of decisions and how these are communicated to the workforce. This also looks at decisions made by governing boards and project / programme / portfolio boards across the organisation responsible for key decisions and expenditure approval.

8.4.3.5 Exercising

The ability to design, develop and conduct exercises, at various levels, from conceptual table-top to full scale run through of processes using staff, vehicles and locations, is a key function in developing and sustaining an organisation's resilience capability. Exercises enable organisations to test their assumptions, review their vulnerabilities and assess whether their risk management frameworks are as effective at tracking the various levels of threats that exist within the environment that the organisation

[610]Grier R.A, `Military Cognitive Readiness at the Operational and Strategic Levels: A Theoretical Model for Measurement Development', *Journal of Cognitive Engineering and Decision Making*, Human Factors and Ergonomics Society, Volume 6 Number 4, 2012, pp 358-392.
[611]Conklin J., Wicked Problems and Social Complexity, *Dialogue Mapping: Building shared Understanding of Wicked Problems*, 2005.

is operating within. Exercising also allows the organisation to implement and review its emergency response and recovery plans and amend where required. Observations of the military and emergency services noted the importance of table-topping potential events. For the military part of their planning process is to wargame their potential plans to identify weaknesses and test assumptions prior to final drafting and publication of the plan. The exercise element is used as a way of gaining potential insights into the potential actions that may occur. Within industry there was very little evidence of this sort of testing and reviewing of plans, either within the Strategic Planning or Operations departments. For the framework, the definition used for the exercising element is:

> *This element examines how the organisation utilises exercises to build awareness and capability within the organisation. It looks at how well the role of exercising is incorporated into the planning framework, either through table-top or actual physical exercising of events and outcomes. This also seeks to track how the exercise outcomes are then incorporated into the continuous development of organisational practices and procedures.*

The value of organisations conducting exercises for teaching, analysis or reviewing assumptions and their planning processes is captured in the various articles reviewed in Chapter 2. Exercising links heavily into the Learning Organisation culture, as well as developing a systems thinking approach to complex activities. For the military, they use exercising at various levels of the organisation, and at various stages of the process. At the outset they may engage in Red-teaming, or alternative analysis processes. This informs many potential scenarios that may occur. Once a scenario is accepted and used to plan against, various courses of actions may be war-gamed and assessed, prior to being full developed. The final wargame, or rehearsal of concept (RoC) drill is conducted to walk the teams through actions and potential events, ensuring all members are aware of what is expected of them.

Exercising also contributes to the building of system awareness, vulnerability tracking and staff development. As the model proposes, each of the elements is informed, or informs, other elements, thus indicating that the development of organisational resilience is a systems approach delivered holistically across the organisation.

8.4.4 Organisational Planning Workstream

This third tactical workstream of the ORM3 framework was focussed on the ability of the organisation to conduct effective planning activities, and the supporting elements that enable this activity to occur. Within this workstream the review of how the organisation collects and analyses information to develop intelligence to enhance effective decision-making, long-term planning requirements and the various information gathering activities that exist. Together these elements allow the framework to assess how effective the approach is towards the planning and intelligence management processes.

8.4.4.1 Business Intelligence Frameworks

This element focusses on how the organisation manages the collection of information from internal and external sources and conducts the various levels of analysis to turn the raw information into intelligence

that the organisation can utilise. The credibility of the intelligence can impact on the accuracy of the decision-making conducted by the leadership team, especially when the organisation is experiencing a disruptive situation. Key to the effectiveness of this element is how the organisation develops the information to decision-making system, linking the information gathering mechanisms to the analytical teams who then prioritise the intelligence to the decision-makers to maintain the effective maintenance of situational awareness. Within the military case studies, the organisation had a combined team responsible for the management of the collection of information from multiple sources, clearly directing where information was required to assist in building awareness. This team was accountable for the analysis and converting the information into effective intelligence. Within the industry case studies, especially within the Strategic Planning department, there was a limited analysis of market options, trends or organisational requirements within the projects that were reviewed. With these observations, this element is defined as:

This element studies the level of application of business intelligence to inform business decisions and operations. It analyses how well the organisation uses business analysts to conduct market research, inform key decisions and support the programme / project frameworks that are present. A second element to this criterion is the level of research and cross-referencing of data that occurs prior to the information being utilised to inform the business decisions. this element is closely aligned and is dependent on an effective information and knowledge collection framework to inform it. This element also considers the number of business analysts / information gathering personnel that are present within an organisation and how effectively they are being used within their primary roles.

This element is not reflected in either the McManus or Stephenson models, which raises questions around how the information is gathered and analysed within their models. The importance of accurate and timely intelligence to help inform the decision maker during disruptive situations is not to be under-estimated. The inclusion of this element as a resilience indicator reflects the importance of the intelligence mechanisms in assisting the ability of the organisation to respond effectively and accurately to the unfolding situation. The ability of the organisation to have a capability that can capture and feed the information into the correct analytical processes to develop situational awareness and support the corporate decision-making process is key to enabling rapid response and adaptation to complex disruptive situations.

8.4.4.2 External Connectivity

In an organisation, there is the requirement to invest and maintain strong communication links with the various external stakeholders and supply chain members. Studies into organisations and disruptive events note that at times there is a breakdown in communications between the organisation and their supply chain. The Nokia / Phillips case study is a clear example of this; while Nokia responded quickly to the impact of a Phillips warehouse fire, Ericsson failed to have an active stakeholder engagement approach. Phillips provided both organisations with microchips to their phones; it resulted in Ericsson

losing a significant slice of the market to Nokia, who implemented an adaptive stakeholder engagement approach.[612]

The military industry case study participants had a good understanding of their immediate external stakeholders, maintaining a good level of engagement with them during steady operations, though second and third order external stakeholders where not as well engaged with. Review of project tools and frameworks within the Strategic Planning department observed that there were limited levels of stakeholder engagement and mapping; this may have been caused through the lack of business change capability within the organisation, who would possess this skill set. Within the military, stakeholder analysis and mapping were part of the intelligence gathering frameworks, with the intelligence team being accountable. Several detailed mapping and assessment tools were utilised, provided a detailed understanding of external stakeholders, their alignment and impact / influence onto the various organisational activities. With these considerations, this element was is defined as:

This element is externally focussed, seeking to understand how well the organisation is connected and engaged with the wider community and business district. The level of stakeholder, community, industry and customer engagement, as well as the management of the company's supply chain, is captured within this metric. This also analyses how effective external feedback loops are, and how well the organisation captures this information to pass on and whether it is delivering a single image externally, or multiple images due to a lack of internal control. Key performance factors, such as stakeholder ratings, reputation and trustworthiness may be used to demonstrate the effectiveness of the organisation within this role.

Seeing the various actors that impact on the resilience of the organisation, especially those that are part of the supply chain, is critical for an organisation to understand the bigger picture when facing a disruptive event. Maintaining effective communications across the external stakeholders and supply chain provides the ability to map and inform the organisation and wider supply chain as an organic system of systems, building a detailed awareness of where potential vulnerabilities may occur when the system is placed under extreme pressure.

8.4.4.3 Long Term Planning Performance Requirements

This element of the framework focuses on the ability of the organisation to develop effective long-term plans to deliver key programmes and activities to enable the delivery of the business objectives and strategy. The ability for effective long-term planning is important to the development of organisational sustainability and direction. The 2018 British Standards Institute report identifies that the mindset of "waiting out the storm" is no longer an option for the modern business.[613] There needs to be a clearly defined approach to planning and sustaining business activity during disruptive events. Research by

[612]Sheefi Y., Building a Resilient Organisation, *The Bridge*, 2007, pp 30 – 36; Valestro J., (ed), `Organisational Resilience Case Studies', Attorney General's Office, Australian Government, commonwealth of Australia, 2011. P.11.
[613]Denyer D., `Organizational Resilience: A Summary of Academic Evidence, Business Insights And New Thinking', BSI and Cranfield School of Management, Cranfield, 2018.

Meyer noted that long-term planning to mitigate potential disruptive events was more cost effective than responding to the unfolding crisis, especially if supported by short-term planned response and recovery activities, which also pull upon social capacity to improve capability.[614] The work conducted by Pollock noted that the UK government's direction on building resilience within communities and in business also focussed on the development of an effective planning process to assist in mitigating the risk of disruptive events.[615]

Within the military organisation, there was a strong focus on the implementation of an effective planning process within the headquarters. This was underpinned by everyone within the organisation being well practiced in the use of the planning process, which was also used to give regular leadership briefings and updates to the various implementation teams. This familiarity with the process enabled the headquarters staff to rapidly conduct planning reviews and contingency planning activities, utilising the structure of the process, without becoming slaves to it. The act of planning also provided a secondary impact; the individuals became adept at being able to quickly re-plan and develop several courses of action, as the complex situation unfolded around them. This ability to plan under pressure enabled an improved level of agility within the organisation.

McManus noted in her research that, of the organisations with which she engaged, few considered a long-term planning approach to developing resilience; rather the effort was based on the development of short-term plans, based on the requirements of the incident they were facing, or driven to meet a business continuity plan activity.[616] She observed that in several organisations investing in the planning process was due to an audit requirement, rather than from good practice. This created the wrong behaviours within those organisations which saw the planning process as a compliance requirement, rather than as a risk management and good practice approach. The definition for this element is:

> *This element looks at the long-term performance planning strategies of the organisation, and how these are aligned to the delivery of the organisational end state. This looks at the ability to create and disseminate Strategic Business Plans, linking resources, funding and time to enable their delivery. Within this area sits the requirement for effective project, programme and portfolio management, supported by the correct governance and assurance frameworks. It also analyses the regularity of emergency planning, business continuity planning and incident management planning activities, and how these are communicated and embedded into the organisation.*

8.4.4.4 Information and Knowledge Collection Frameworks

This element analyses the various mechanisms that the organisation has in place to facilitate the effective collection of information on its environment, stakeholders and competition, and its ability to

[614]Meyer M. A., `Social Capital and Collective Efficacy for Disaster Resilience', PhD Thesis, Department of Sociology, Colorado state University, Colorado, 2013.
[615]Pollock K., `Review of Persistent Lessons Identified Relating to Interoperability from Emergencies and Major Incidents since 1986', *Emergency Planning College Occasional Papers*, New Series, number 6, Emergency Planning College, Easingwold, 2013
[616]McManus, Organisational Resilience in New Zealand', 2008.

retain and share the knowledge that is collected. This element links with the business intelligence and connectivity elements that have been previously discussed. Within crisis events, Fink notes that communication is key to maintaining a situational awareness, though effective communication can only occur if the correct information is collected and the teams have the knowledge to manage its application.[617] In 2013, Fink, when analysing the BP disaster *Deep Water Horizon*, observed that the circulation of incorrect level of information can initiate a greater crisis. He notes that crisis management is about managing the situation, while crisis communication is about managing perception.[618] This links it to the Corporate Social Responsibility and Silo Mentality elements, as for this to work effectively, the other elements are also required.

For the military, ineffective collection of information and knowledge has contributed to several recent operational failures, leading to corporate brand damage, incorrect procurement of equipment and casualties on the battlefield. The failure of the purchase of the Chinook Mk 3 helicopter was littered with poor information reviews, uninformed assumption and incorrect knowledge of the MoD teams as to how to procure and manage a complex contract.[619] Observations by Marston and Malkasian of the British experience in the Iraq conflict noted the initial failure to gather information and effectively use the knowledge of its environment and complex social and political situations that it was operating within, while Ledwidge discusses the failure of commanders to pass the correct levels of information back to Whitehall, for fear of being seen to have lost control of the situation.[620]

Within the industry departments, feedback from the questionnaires indicated that there was a poor level of information capture and flow, hampered by the levels of process knowledge within the leadership teams. Responses to the questionnaires led to the observations that this resulted in the departments not understanding the requirements of the customers, and not operating collaboratively internally with other teams. The military case studies also demonstrated the impact of not having effective information gathering frameworks in place or circulating knowledge across the various teams within the organisation. Observations captured within the case study reports noted misplaced resources, assumptions and incorrect decisions being made as key pieces of information, already collected and analysed, were not shared.

This element observes the level of sharing knowledge and information across the various departments and levels of an organisation, and how this is managed effectively. It also assesses how the information frameworks are involved in the building of an end to end system that enables the collection of accurate information, its analysis and how effectively it is communicated to key stakeholders to inform evidence-based decision making. Part of this process is the creation of a

[617]Fink, *Crisis Management*, 2002.
[618] Fink, *Crisis Communications*, 2013 pp. 10-11
[619]National Audit Office, `Ministry of Defence Chinook Mk3 Helicopters', Report by the Comptroller and Auditor General, House of Commons Report, The Stationary Office, London, 2008.
[620]Marston D and Malkasian C., *Counterinsurgency in Modern Warfare*, Osprey Publishing, 2008, pp 306 – 310; Ledwidge F., *Losing Small Wars*, 2012.

pipeline from research through to development, with the correct level of staff capability in place to manage it.

Both McManus and Stephenson focus on the importance of information gathering and the effective sharing of knowledge. Stephenson notes that good information management helps the breaking down of silos, while sharing knowledge across the organisation builds capability and awareness.[621] McManus indicates that the limited sharing of knowledge impacts on the capability of the staff to operate outside their normal role, which, in times of disruption, is detrimental to the organisation being able to respond and adapt to the situation it is facing.[622] Effective knowledge sharing of what individuals and teams do can promote greater engagement and awareness as to what critical activities are required to be maintained during disruption, enabling individuals to pull together collectively. An effective case study for this is the Sanders O'Neill & Partners situation, where, because several individuals each knew their role and those of their colleagues, when faced with a catastrophic loss of staff and information, they were able to recover the majority of customers through latent knowledge within the organisation and the remaining staff.[623]

8.4.4.5 Operating and Licensing Frameworks

An organisation that wishes to conduct effective operations, either within the military or business sphere, needs to understand the relevant operating frameworks and restrictions that are in place, and the agreed licensing requirements that exist. For the military, this can replicate itself as certain restrictions on weaponry, engagement protocols, limited air and aviation missions and a restriction as to which ground vehicles can be used in certain areas. This may also extend to how the teams on the ground act in relation to the population that they are interacting with, and their limits of activity. Recent examples within Iraq[624] and Afghanistan[625] have shown that not following the accepted international frameworks can lead to extensive reputational damage and prosecution. The fall out of the Baha Mousa situation for the British Army was a strategic investigation, which identified that the culture of the organisation in question had become toxic. The Army instigated rapid recovery procedures to address the reputational damage, including the development of Values and Standards education packages, which became mandatory for all members of the organisation to attend on an annual basis. Failure to attend carried a disciplinary censure. Situations that challenged the correct Values and Standards were also written into training events and exercises to help ingrain these into the organisation.

For the military case study organisations, pressure was placed on the teams to operate effectively in a complex disruptive environment with increasingly restrictive operating frameworks being placed upon them, from both a political and an operational level. The increased pressure for more information, reduction in certain activities and more reporting procedures started to impact heavily on the capability

[621]Stephenson, `Benchmarking the Resilience of Organisations', 2010, pp. 106 - 107
[622]McManus, Organisational Resilience in New Zealand', 2008, p.93-94.
[623]Freeman S.F., Organisational Resilience and Moral Purpose, 2003.
[624]Baha Mousa and Camp Breadbasket investigations, 2011, available at www.gov.uk/government/publications/the-baha-mousa-public-inquiry-report, accessed 20 Jan 2019
[625]Soldier A court case, available at www.judiciary.uk/wp-content/uploads/2017/03/r-v-blackman-judgment-150317.pdf , accessed 10 May 2019.

of the organisation to conduct its role, as well as increased the frustrations experienced by the staff through feeling they were being prevented from being fully effective.

For the industry case study departments, there was also a clear requirement for understanding the operating and licence frameworks that impacted upon the organisation. The Strategic Planning department was held to account through the Network Code, which is the operating framework that defines the process of developing the national railway timetable. Investigations in Chapter 5, section 5.5.3 have identified that the framework is not fit for purpose for the 21st century railway, which has led to multiple issues with which the planning department had to contend. The Strategic Planning department is also responsible for delivering a key component of the parent organisation's licencing arrangement, namely, that of developing, delivering and maintaining an effective national railway on behalf of the Department for Transport. With this evidence, the definition for this element is as follows:

> *This element analyses how the organisation manages the relevant operating and licensing frameworks within which it is bound to function. It observes how well the organisation is reporting against its agreed frameworks, the number of recorded breaches of the contractual agreements and how information is captured and disseminated to the relevant regulatory bodies. Within the element is also the examination of current security and operational requirements, stipulated by legislation or the regulator, and how the organisation is delivering against these requirements. At an industry level, key Service Level agreements between industry partners are captured under this element. It also looks at the level of engagement that takes place with the various regulatory bodies and the level of collaborative working*.

Though both McManus and Stephenson note the importance of operating within the legal frameworks, there was no clear element defined within their separate frameworks, even though the lack of clear understanding and awareness of the required operating and licensing carry the risk of severe reputational damage.

8.4.5 Organisational Governance and Structure Workstream

This workstream is focussed on the structures of the organisation and whether it is properly aligned with the various tasks and requirements it needs to carry out to deliver its goals and strategy. Allied to this is the level of governance that is in place, and the mechanisms that have been developed to enable the effective implementation and management of the governance frameworks, which support the first workstream, that of building business assurance. Within the workstream the elements analyse whether the roles and responsibilities are correctly aligned, the capability and capacity of internal and external resources to respond effectively, how the organisation manages breaking down silos, and how it builds and maintains a positive corporate image through the investment into Corporate Social Responsibility.

8.4.5.1 Roles and Responsibilities

In an organisation, the development of situational awareness and maintaining the flow of information relies on understanding who, in the time of disruption, are the critical decision makers and what

information / intelligence they require in order to make the difficult decisions to maintain the organisation operating at an effective level. Within both the military and industry case studies there were very different approaches to the roles and responsibilities of individuals, especially at the junior and middle management level. Feedback from the military audiences is clear that the effective understanding of the roles and responsibilities of the individual, and the level that they were empowered to operate at, meant a higher degree of trust, decision-making under pressure and engagement existed. When the industry questionnaires were reviewed, there was several responses that noted the lack of clearly defined roles and responsibilities, especially around accountability, resulted in the breakdown of trust, disenfranchised employees and a reduction in performance.

Key implications of a poorly defined roles and responsibilities matrix was the confusion of who should be doing what within the team / function. When speaking to the military personnel, individuals had a clearly defined primary and secondary role within the planning headquarters. In times of disruptive change, or a major incident, each individual was also heavily trained in the role of their line manager to enable the organisation to function effectively if the majority of the decision-making team was incapacitated; some members were also trained to operate a two levels above to maintain key functions for a limited period of time. This level of redundancy was not apparent within the industry team; feedback noted that this may be due to cost and potential efficiency savings; the majority of managers did not advocate empowering their subordinates in being able carry out their role completely in case it impacted directly on them. With these observations, the definition for this element is:

> *This element is identified through the level of knowledge a member of staff has of their role, members of their team and their supervisor's role. A clear understanding of roles and responsibilities is important during a disruptive event, as each individual may have a key responsibility to maintain the operational functions of an organisation as it tries to manage the impact of the disruption. Across the organisation this also encompasses the accuracy of job descriptions, competency requirements, levels of authority and whether similar roles in different departments are aligned. This includes levels of staff awareness, level of trust within the team and engagement with the strategic vision.*

The organisational culture can also heavily influence the approach to how roles and responsibilities are managed. The level of responsibility deferred to the individual also differed from the military and the industry case study organisation. The military was based on a decentralised, networked organisation, as discussed in Chapter 5, and therefore the decision-making was decentralised, using the principles of `Mission Command' to enable the teams on the ground to react quickly and effectively, based on the understanding of the Headquarters' intent. The industry model was very centralised, for both the Strategic Planning and Operations departments; the questionnaires noted that at times decisions were delayed as managers did not take accountability for the decision being made.

8.4.5.2 Internal Resources

This element of the workstream is focussed on understanding the situation and capabilities of the internal resources of the organisation. Research conducted by Pollock on behalf of the Cabinet Office noted the importance of having the right individuals with the right skills in the right positions within an organisation, supported by the correct technology and resources to enable them to respond rapidly, and effectively, to a disruptive event.[626] He noted that common failings across the 32 crises he analysed were poor training, ineffective leadership and a failure to learn lessons. There were several others that fit elsewhere in this model. McManus and Stephenson also note the importance of clearly understanding the human resources available and what their capabilities are; Stephenson notes that the capability and capacity of staff can determine whether or not an organisation will be effective in its response to a crisis.[627] McManus identified through her research that several organisations she engaged with had failed to consider secondary working locations for their staff during a disruptive event, while others had over-inflated expectations of their staff being able to operate remotely.[628]

Research into the importance of social capital when responding to disruption was the area of research by Johnson, who analysed how organisations could utilise their social capital to enhance the building of resilience. As already noted, a good example of this was the law firm Sandler O'Neil & Partners, which was decimated by the World Trade Center attack in 2001, yet, through the utilisation of its social capital and internal resources, survived the loss of almost 40% of its staff and its premises and continued to trade.[629] The military live case study teams were effective in managing their internal capabilities, with individuals trained to have a primary and secondary role, as well as empowered to make decisions based on the wider operational intent. In comparison, the industry departments struggled with understanding their capabilities, with the strategic planning department suffering from a 20% turnover rate in staff, presence of a blame culture and a damaging aggressive leadership framework, as shown by the responses to the questionnaires. With this evidence, the definition for this element is:

> *This element examines the level of internal resources within the organisation and how they are managed. It aims to identify whether the organisation, through its Business Continuity Plans, has identified secondary locations and/or alternate arrangements for its critical functions. There is also the need to identify key services and assets, such as technology and power, which could lead to major issues if these services are disrupted. Within this element the management and implementation of effective Business Change Management is also assessed. This element also considers financial management and the correct practices, procedures and frameworks that are in place to deliver effective financial resource management. It also looks at the level of staff manning, the number of critical and non-critical gaps within the organisation, levels of turnover and the*

[626] Pollock K., `Review of Persistent Lessons Identified Relating to Interoperability from Emergencies and Major Incidents since 1986', *Emergency Planning College Occasional Papers*, New Series, number 6, Emergency Planning College, Easingwold, 2013.
[627] Stephenson, `Benchmarking the Resilience of Organisations', 2010, p.93
[628] McManus, Organisational Resilience in New Zealand', 2008
[629] Freeman S.F., Organisational Resilience and Moral Purpose, 2003.

management of internal recruitment frameworks. A key element is the level of health and well-being support that is also in place for individuals to access.

8.4.5.3 External Resources

This element of the workstream is focussed on understanding the situation and capabilities of the external resources that the organisation can utilise to support it during the management of a disruptive event, and the effective understanding of the various requirements needed to enable the organisation to engage these external resources. This is more focussed on the organisation being aware of the limitations of such external organisations such as the emergency services, insurance organisations, local and central government agencies in the time it takes to respond to a disruptive event and to mobilise the required resources. This element also takes into consideration the impact of a disruptive event on the organisation's supply chain, and whether there is a clear understanding of the implications that this could have on the delivery of effective services for the organisation.

With the military live case studies, the degradation of their supply chain during several of the complex events, ranging from lack of spares for vehicles to reduced external support services, resulted in a drop in effective performance and a loss of situational awareness. Within the industry Strategic Planning department, the actions of the external resources in failing to provide the correct information in the correct format resulted in major delay in the production of the timetable. For the industry Operations department, the delivery of equipment by a third-party supplier that was untested and faulty resulted in major delays within the engineering works around major London stations during the 2014 Christmas period, damaging the business's performance and reputation.

McManus noted in her research that many of the organisations she interviewed had unrealistic expectations of the emergency services and local government departments when it came to crisis response.[630] She also noted that the successful organisation is the one that understands its place within the supply chain and develops its own engagement strategies in the event of a crisis. After the September 2001 attacks, Sandler O'Neill & Partners relocated to its secondary locations, operating effectively within days afterwards, due to understanding the limitations to damaged IT infrastructure and focussing on utilising the social capital of external resources who were seeking to support them through their disruption. The testing of secondary locations and understanding the limitations of the external resources resulted in an increased situational awareness, limiting the damage to operations.[631] Therefore, the definition of this element is:

This element is identified through the means by which the organisation understands its position within the local economy, and the wider supply chain. It examines what external support / aid it would expect to receive from Government agencies, 1st responders and security personnel in a major disruptive event, and the frameworks in place to initiate and manage this support. This

[630]McManus, Organisational Resilience in New Zealand', 2008 pp 85-86.
[631]Freeman S.F., Organisational Resilience and Moral Purpose, 2003.

includes frameworks, engagement processes and the relevant communication channels and methods an organisation has with the various parties, its supply chain and other key external stakeholder groups.

8.4.5.4 Silo Mentality Management

Research into instances of poor responses to disruptive events regularly identifies organisations that fail to work collaboratively, have limited communication and do not utilise information or resources effectively. Various reports from the Chartered Management Institute noted the failures of leadership to co-ordinate responses, develop effective communications and break down the various silos created within the organisation through culture, operating mechanisms or staff issues.[632] Spieght remarks on the benefits of departments working together to manage the impacts, where risk and corporate security teams can pool resources and get a better awareness of the risks facing the business.[633] Lindstrom posits that organisational silos also damage the ability for an organisation to learn, damaging the flow of information between teams, individuals and the organisation.[634]

The issues around silos and the mentality of their development in organisations are not new. They cause a fractured approach to disruptive events and create individualistic responses, rather than a co-ordinated reaction. McManus notes that organisations that experience rapid growth or decentralised operations suffer from the effects of siloed working; within the military case studies there were several occasions of teams failing to deliver the required actions due to siloed working and fractured information flow. Within the industry departments, the siloed working led to a breakdown in communications when developing the timetable or managing the unfolding complex engineering situation. With reference to these examples, the definition for this element is:

This element analyses how an organisation performs across its various departments and whether, through its communication frameworks, it enables cross organisational working. It looks at how well the workforce is engaged with the strategic vision and understand the bigger picture, or if groups operate independently of each other. It also identifies whether practices are mutually supporting, or if independent operations cause detrimental issues for the organisation through the creation of internal conflict and the ensuing reputational damage.

Stephenson remarks that silo mentality is a social phenomenon that can affect individuals, communities and business units, brought on by individualistic traits, geographical proximity or by thought processes.[635] Silo mentality can also be driven by the organisational culture, which drives certain behaviours. The first step towards being able to limit the impact of silo mentality is being aware that it exists and understanding the drivers that creates such a mentality. The evidence from both the military

[632]Woodman P., `Business Continuity Management 2008 Report', The Chartered Management Institute, London, 2008: Woodman P. and Hutchings P.,, `Managing threats in a Dangerous World', The Chartered Management Institute, London, 2011: Pearson G. and Woodman P., `Weathering the Storm', The Chartered Management Institute, London, 2012.
[633]Spieght P., `Business Continuity', *Journal of Applied Security Research*, 2011.
[634] Lindstrom J., A Model To Explain a Business Contingency Process, *Disaster Prevention and Management Journal*, 2012.
[635]Stephenson, `Benchmarking the Resilience of Organisations`, 2010

and industry case studies was that several situations caused by the silo mentality were driven by individuals placing their requirements above those of the organisation. Stephenson described silo mentality as:

> "Cultural and behavioural barriers which can be divisive within and between organisations which are most often manifested as communication barriers creating disjointed, disconnected and detrimental ways of working."[636]

8.4.5.5 Corporate Social Responsibility

In the 21st century, the way that an organisation behaves is becoming as important as the services or products that it delivers. With the increased pressure on the environment, socially acceptable working conditions for staff, minimum wage payments and carbon neutral working practices, companies are now subject to the need to consider their impact on the biosphere and their local natural and social environments. The UN treaties of Hyogo and Sendai identify the requirement for organisations and governments to take responsibility for the development of ethical working practices that also focus on reducing the impact to the environment.[637]

Recent disasters that have impacted on the environment on a global scale, such as the BP Deepwater Horizon event in 2010, which saw the sinking of an oil rig and a 1100 mile oil slick decimate the wildlife, and placed approximately 12000 individuals in temporary unemployment by restrictions put in place following the spill. The company was fined $44.5bn and banned from bidding for any federal contracts until mid-2014. Reputationally the damage for the company was global.

For the industry and military case studies, there was a level of focus on the approach taken to develop a better corporate image within their operation roles. For the military, operating in a complex disruptive situation, managing the various active threats and simultaneously seeking to obtain the trust of the population requires consideration for the public image. Often regarded as "Hearts and Minds", the UK military has spent a significant period of time and effort in developing, through strategies such as the Comprehensive Approach, which has been discussed previously, to build a more positive approach to engaging with populations, being more aware of their social responsibility to minimise damage and casualties within the campaign areas. For the industry case studies, the organisation has invested heavily in becoming more aware of its public image, utilising the Social Capacity of its workforce, through volunteer leave activities, to build its corporate social responsibility and public image. Using regular engagement with public and industry forums, the industry departments increased their efforts to build the engagement with the wider social communities it affected, aiming to build a positive relationship between the organisation, the workforce and the local communities and stakeholders it operated within. With these examples, the definition for this element is:

[636]Ibid, p.103.
[637]UN, Hyogo framework 2005; UN, Sendai framework, 2015.

This element looks at the external image of the organisation and how well it engages with the local community in order to build a sustainable framework. It analyses the level of community events, research sharing, and the support given to local initiatives through either financial or staff support. Examples, such as volunteer days, support to local re-growth events or the use of staff to provide volunteer support to charities and local economy activities are captured within this measure. It seeks to identify whether these events provide a positive impact to the organisational image. This is key because, in the event of a disruptive event, it may enable the organisation to recall the goodwill and support through the short-term mobilisation of human capital to help stabilise the situation.

While both the military and industry case study organisations have placed significant effort into building better corporate social responsibility footprints, there is still a lot of work to be done. The recent observations from the Afghanistan, Syria and Libya campaigns, plus the drop in recruitment, which has resulted in the Army, for example, being under-staffed by 10,000 personnel, have shown that there is a disconnect between the military and society. For the industry departments, the responses from the questionnaires, plus several government reports, indicates that the approach is still flawed and is impacting on the reputation of the organisation.

8.4.6 Organisational Development

This tactical workstream focusses on the key elements that support the long-term sustainability and growth of the organisation. Rather than focussing on the core processes as the other four have, this workstream is more people and development centric. Therefore, within this workstream the ORM3 framework analyses how the organisation empowers and engages with its internal workforce to build and promote the required culture, how it recruits, develops and retains the key experience and skill sets within the workforce, enabling sustainment of knowledge and technical capability. It also studies the communications and frameworks that exist, allowing the organisation to improve the flow of critical information and data across various teams. The last two elements focus on the ability to develop and maintain a continuous improvement approach, which is closely linked to organisational learning, and how organisational learning is used to support the research and innovation activities that are present within the organisation, thus allowing it to adapt and learn from its environment.

8.4.6.1 Staff Engagement and Involvement

This element focusses on how well the organisation engages with its staff and engages them within the various processes and decision-making activities. This is important, as the more involved the staff feel with the organisation and the situation, the more they are willing to find a way to respond and adapt to the situation and go beyond their normal day requirements. The ability for staff to feel empowered and supported to act is key to developing a positive culture within the organisation. This element is heavily influenced by the organisational culture.

The feedback from the industry departments through the questionnaires indicated a level of frustration with the leadership group, with the staff feeling isolated and poorly informed of key decisions or changes that occur within the organisation. Several noted that they felt “done to” rather than “part of” the change

process. It was also noted that within several of the projects that were being delivered in the planning department, there was a level of frustration within the staff that they were not being listened to by the leadership team.

Within the military case studies, there was a focus on ensuring that the military team leaders were heavily involved in the planning and delivery processes. The headquarters planning team would regularly seek to engage with those that they saw as the "technical specialists" for advice on certain issues. This is embedded in the `Mission Command' approach that is itself embedded within the military mentality. Teams are also properly briefed on the disruptive event and the commander's intent, which enables them to understand the bigger picture. The plan is then war-gamed and walked through, enabling the commander to confirm the staff understand the plan, while also presenting the staff opportunity to discuss potential risks and issues that they may observe.

McManus does not identify this as a key resilience indicator, though the loss of staff engagement can lead to personnel leaving the organisation, increasing the risk that the organisation loses key skills and capabilities. She does, however, note within several other elements of her model the importance of staff engagement and empowerment. Stephenson did identify that this was a resilience indicator and captured it as a key factor. She noted that in high resilience organisations, staff are empowered and flexible in their response to disruption, and described it as:

> "The engagement and involvement of staff so that they are responsible, accountable and occupied with developing the organisation's resilience through their work because they understand the links between the organisation's resilience and its long-term success."[638]

Based on the knowledge obtained from the case studies and questionnaires, as well as the evidence from reviewing McManus and Stephenson's work, the definition for this element is:

> *This element analyses the level of staff engagement across the organisation, and what mechanisms are in place to capture staff feedback. It also analyses how often staff are consulted and involved in key decision-making events and the development of staff focussed events, such as corporate and department information and update days. Within this area is the level of engagement with Union representatives, working approaches with Unions and the internal consultation processes to maintain effective working practices. During disruptive events, this also incorporates how the organisation manages the emergency communications and manages the involvement of key staff members to maintain critical capability.*

8.4.6.2 Communications and Relationships

In his work Turner notes the importance of effective communication and working relationships when managing the required resources allocated to disruptive events. Depending on whether the situation

[638]Stephenson, `Benchmarking the Resilience of Organisations', 2010, p99.

shrinks or increases, the resources can be moved through effective communications across the organisation. He notes that one of the major causal factors that was involved with the initiation of the observed disasters was the failure of communication and a working relationship between various teams within the organisations. His review of the British Rail disaster at Hixon focussed on the failure of communications between multiple individuals within the organisation.[639] This is a familiar situation, with several recent accident investigation reports also referring to poor communications between railway staff. Poor communications were also one of the causal factors for the timetabling crisis and the engineering overrun situations experienced by the industry departments.

The failure to manage this element was also reflected in the G4S security crisis for the delivery of staff for the London 2012 Olympic games. The report into the G4S failure notes that there was a failure of communication across the various elements of the project teams, with the whole project not being properly managed or risks being communicated effectively. There was also a failure within the approach to communicate early and effectively with potential recruits, which resulted in the failure to recruit the numbers required for the task.[640]

For the military case study organisation, the importance of communications and relationships was key for the delivery of mission success. The flow of information over communication frameworks was vital to maintaining situational awareness and organisational capability, as well as enabling cross-organisational working with other organisations as part of the Comprehensive Approach. The more effective the communication frameworks and the flow of information, the stronger the relationship between the various operational groups. Fink notes that during crises, organisations often fail to communicate effectively, allowing the situation to deteriorate further, or incorrect decisions to be made in the information gap that exists.[641]

Evidence from the military and industry case studies through the observation reports for the military organisation, or from the questionnaires from the industry departments, both raised concerns over the level of communication during disruptive situations. It was remarked that the reduction in clear communication impacted on the effective performance of the organisation. Stephenson noted in her research that effective communication and strong team relationships assisted in the development of situational awareness, while McManus noted that there was a clear link between effective communication pathways, respectful relationship building and the ability to acquire, retain and share critical information during times of disruption.[642] Without effective communication frameworks, the organisations she analysed struggled to develop effective information flow during a crisis. With these findings, the definition adapted for this element is:

[639]Turner B. A. The Organisational and interorganisational Development of Disasters, *Administrative Science Quarterly*, 1976.
[640]G4S Plc Board Report, Review Of London Olympic and Paralympic Games Security Contract 2012, available from https://www.infologue.com/wp-content/uploads/2012/09/G4S-Olympics-Review..pdf, accessed 10 Feb 2017.
[641]Fink *Crisis Management – Planning for the Inevitable*, 2002.
[642]McManus, Organisational Resilience in New Zealand', 2008, p.92

This element explores the various internal and external communication frameworks that are in place. Linking with the resource and the staff engagement elements, it studies the effectiveness and management of the various communications processes. It focuses on how well the key internal structures are informed around organisation issues. It also looks at how well and how regularly the external organisations within the supply chain, as well as key stakeholders, are engaged to maintain situational awareness. This is key to developing business intelligence networks and human capital.

8.4.6.3 Research, Innovation and Creativity

Creativity has always been at the heart of human endeavour to expand, develop and find ways to improve the current situation, and has been recognised to be critical to organisational development, performance improvement and long-term survival.[643] As organisations seek to develop the social capacity of their workforce to grow the level of internal innovation and creativity, which can help generate individual research projects and programmes, it has become a source of competitive market advantage. The ability to innovate, through creative thinking and activities, is a key element to allowing organisations to quickly adapt and maintain an advantage over their competitors, or the events that are unfolding around them.

The military involved in the live case studies were forced to innovate and be creative in order to respond to a threat that was regularly adapting their approach to maintain an enhanced level of combat effectiveness, seeking to maintain the advantage over the case study threat scenario and the resulting hostile activities. The enemy was not more technologically advanced rather conversely it was able to change rapidly with its operating procedures, tactics and engagement methodologies, preventing the military organisation from having a stable operating environment. The challenge faced by the military organisation is that innovation is not realised instantaneously. Staff need the supporting frameworks and culture to be allowed to try and test ideas and concepts without the fear of recrimination if the initiative fails. Most organisational management staff make the error of trying to manage the process, rather than managing the frameworks that support the process.

For an organisation to develop a successful approach to innovation there are several components that need to be in place for it to develop a successful innovation system. These can include systems thinking, decentralised teams, knowledge frameworks and the correct level of resourcing, supported through an organisational culture that supports creativity and innovation.[644] There are also mechanisms that can be put in place to minimise silo thinking and groupthink. To obtain the best from innovative teams requires strong, effective leadership, comfortable in allowing teams to explore without restricting opportunities.

[643]Serrat, O., Harnessing Creativity and Innovation in the Workplace, Knowledge Solutions, 2009; Anderson, N, Potonik, K & Zhou, 'Innovation and Creativity in Organizations: A State-of-the-Science Review and Prospective Commentary' *Journal of Management*, Volume. 40, number. 5, 2014, pp. 1297-1333.
[644]Serrat, O., Harnessing Creativity and Innovation in the Workplace, Knowledge Solutions, 2009.

In the military, this process is linked into the various pre-deployment exercise activities that it conducts, allowing it to test and adjust certain concepts, ideas, processes and procedures in the relative safety of the virtual or training environment. This allows a level of growth and exploration within the organisational staff, providing aspects of a learning organisation. Feedback from the industry department questionnaires demonstrated that there was a level of creativity within the operational department staff that enabled them to address disruptive events on the railway, though there is a limited level of support within the organisation due to the restrictive risk averse and safety heavy culture. Within the planning department, the questionnaires demonstrated a very rigid, top down organisation that was heavily managed with little room for the teams to apply any innovation and creativity. Even the "innovation" team was directed to adhere to processes and procedures, restricting the level of actual creativity or innovation that could be conducted.

McManus did not consider this element as a key resilience factor and therefore did not investigate the impact that this may have on an organisation.[645] Stephenson did identify this as a potential resilience element, and in her research identified it as a key component of an organisation being able to adapt to a disruptive situation and described this element as being critical to the generation of new ideas during crises or emergencies.[646] For the purpose of this framework, this element is described as:

> *This element studies the degree to which research, innovation and creativity are encouraged and actively supported across the organisation at all levels, rather than held within siloed areas of the organisation. The generation of new ideas and "thinking outside the box" for the management of complex disruptive events is key to maintaining a flexible approach to the operational requirements of an organisation during disruptive events. A reliance on siloed working will limit the effectiveness of innovation and creativity within the organisation. Within this area is the management of user groups, dynamic innovation and the interaction between the R&D department, user innovators, legal department and the operations delivery teams.*

8.4.6.4 Continuous Improvement Frameworks

This element analyses the ability of the organisation to identify lessons and conduct learning at the operational and strategic levels, improving the capability of the organisation to react, adapt and protect itself from disruptive events. Neither McManus nor Stephenson captured this as an independent resilience element within their studies, though they did note the importance of organisations being able to identify and address vulnerabilities.

Continuous improvement frameworks, such as lessons identified, learned and applied, are key to the development of an organisation. Linked closely to research, innovation, intelligence and knowledge collection mechanisms, this element provides the business with a Learning Organisation approach, learning either from its own experiences, or from observing the experiences of others. The military live

[645]McManus, Organisational Resilience in New Zealand', 2008
[646]Stephenson, `Benchmarking the Resilience of Organisations`, 2010 p.113.

case studies identified the importance of the lessons identified and applied approach. Both the military organisations that carried out the exercises demonstrated a noticeable improvement in their resilience profile after conducting an After-Action Review from the first case study activity, identifying areas where improvement was required and making the requisite adjustments. This provided a better functioning organisation for the second series of activities.

Work by Paul Matthews into how organisations learn highlights the importance of conducting lessons identified activities, which in turn will assist with the creation of learning transfer actions across the organisation.[647] He noted that many organisations focus more on the development of training activities intent on delivering knowledge obtained from the lessons review process, rather than facilitating the action of knowledge transfer. It is the knowledge transfer that delivers the impact, yet he remarks that few consider this. The issue is that the component of the organisation that is responsible for knowledge transfer is also responsible for developing training; therefore, it focuses on developing the material, rather than managing the transfer of knowledge, which is where the actual improvement will occur.

The importance of learning lessons and building a continuous improvement framework to link into the development of a resilience culture should not be under-estimated, yet, as shown by the work of McManus and Stephenson, few identify the importance of this element to the developing and sustaining of a resilience culture. This element ties in with the work of Argryis in developing cultural, or double loop, learning, which seeks to address the root cause of the issue, rather than treating the surface symptoms, while Lukic et al note that the organisation needs to have the correct culture in place to promote and sustain effective learning across the various teams.[648] They also propose that the focus of the learning should not just be on the organisational responses and the staff, but also understanding the causes and lifecycle of the disruptive event. This would identify whether there were trigger signs, or if it was a complex event that could not be anticipated, in which case the focus is on how the situation was managed. With these observations, this element is described as:

> *This element looks at the effectiveness of the organisation to learn lessons from previous events, or from similar events within the sector. By learning from previous events, or from others, the organisation builds a culture of continuous improvement through learning. This also creates an environment where learning is part of the organisational framework, where staff are trusted to learn from mistakes and are unafraid to report incidents or errors for fear of recrimination Also observed is at what level is post event learning, such as a project or programme review, integrated into the framework, and where lessons observed are reviewed and applied to similar projects and programmes at the initiation phase.*

[647]Matthews P., *Learning Transfer at Work,* 2018.
[648]Argryis, A., `Single-loop and Double-loop Models in Research on Decision-making', *Administrative Science Quarterly*, 1976; Lukic D. et al, `How Organisations Learn from Safety Incidents: a Multifaceted Problem`, 2010.

8.4.6.5 Staff Talent and Succession Planning Frameworks

A key element of building and maintaining resilience within an organisation is the investment in staff development, building the talent management and succession framework. This is particularly important when managing a complex situation where there is no time for information to move up and down the chain of command for decisions to be made. Within HROs, the direction is that the individual who has the most experience and knowledge takes the lead in a situation, advising the leadership element of the complexities of the situation. A similar approach is taken within the emergency services and the military, where technical advisors will take priority in providing the guidance and direction to the leadership group, with the Ammunition Technical Officer (military) or the Chemical Advisory Team (emergency services) being examples where, though they may be outranked by the leadership group, they have primacy in certain complex situations.

Within the military and emergency services there is a high level of redundancy in the staff capability held within the organisations. Individuals are trained in their own role and the role of the individual above them. For the military live case studies, one of the exercise serials was the removal of the leadership team part way through the event, forcing the junior managers to step up and into the command level roles. This effect then rippled throughout the organisation, with the organisational structure having to adapt, with many individuals within the headquarters and frontline teams having to adjust to operating at the level above. This approach is regularly conducted in military training as well, using the need to operate at one level above their role as a means to develop adaptive thinking and being comfortable with change, as the situation may regularly present itself on combat operations. By building an empowered workforce, the military organisation, through its `Mission Command' ethos, embeds flexibility within its individuals, simultaneously providing a level of operational agility.

This was not the case with the industry departments. Feedback from the questionnaires, as previously discussed in Chapter 7, demonstrated an organisation that was not investing in the development of staff as much as it should. The feedback identified an inefficient senior leadership framework, an aggressive approach to management, and an overarching presence of a blame culture being experienced at the lower levels of the organisation. This situation can be detrimental to the performance of the organisation, damaging the psychological contract between the management team and the employee.

This lack of investment in staff is clearly seen when it comes to developing leadership and management capability. Using the middle management role as a prime example, for the industry departments this is a Band 2 individual, for the military this is the rank of Major. For the military, on promotion to Major, every individual will attend an 8-month residential management development programme, investigating areas such as project management, operational planning, crisis management and team development. For the industry individual, their development programme also occurs over an 8-month period, but only consists of a total of 12 days of actual education and professional development. This difference in the approach to leadership development and critical problem solving and management of complex situations, which are the basis of many military training events as it targets non-technical skills, is very

apparent. The military approach is something close to the learning culture advocated in a Learning Organisation, placing approximately 400 individuals through the programme annually. The industry approach is quite inefficient, providing a limited level of investment into 40 individuals annually, relying on the individual to do most of their development and learning while “on the job”.

Neither McManus nor Stephenson identified this element as a stand-alone resilience indicator, though they did capture it in various observations within their identified resilience factors. The various research streams conducted during this thesis identified the importance of staff development and investment, with effectively trained staff providing an organisation with a level of agility during a disruptive event. Observations during the military live case studies demonstrated the importance of having a level of operational redundancy when faced with a complex situation. Being able to rely on the lower management tier to take critical decisions without hesitation as they understand the organisational intent was critical in preventing the situation deteriorating further. With this evidence, this element is described as:

This element analyses the level of staff training, education and development that the organisation invests to build and manage its internal staff talent. It studies the level of succession planning and whether junior members are taught, informed and encouraged to do their line manager's role. This focuses on whether the organisation can effectively function if the "second eleven" were required to manage the organisation in the wake of a major disruptive event. It also analyses the level of corporate knowledge that is retained, and what processes are in place to prevent critical information loss on the departure of an employee.

8.5 THE ORGANISATIONAL RESILIENCE MATURITY MODEL ELEMENTAL STRUCTURE

Having analysed the various elements within the ORM3 framework, pulled from the review of the factors identified in Table 21, the next step was to develop the framework, providing a mechanism that business could utilise to assist them in assessing and developing their approach to building and sustaining organisational resilience. The following sub-sections will discuss the development of the framework and the various components within it that, collectively, deliver the ORM3 framework, providing the mechanisms for organisations to assess their Organisational Resilience capability.

8.5.1 The Initial framework

The research findings from across both industry and the military that are discussed in previous chapters, clearly articulated that there was a requirement to develop a framework to assist in the development and monitoring of resilience within organisations. The ORM3 tool was aligned to having 5 tactical streams, with an over-arching strategic theme. The supporting framework was built from the twenty-eight components identified above, derived from the list in Table 21. Rather than considering these as independent factors, the matrix was designed to also reflect the system of systems approach, identifying and aligning components that may impact on each other. This framework was designed to also enable

organisations to map their tactical activities against the British Standard BS65000: Organisational Resilience, thereby conforming to the guidelines laid down within the UK standard. The Organisational Resilience Measurement Maturity Matrix (ORM3) framework is shown in pictorial form in Table 22.

Comprehensive Approach to Resilience									
Strategic Eelement									
CR1	Corporate Culture Maturity								
CR2	Strategic Corporate Vison								
CR3	Adaptive Leadership framework								
Business Assurance		Business Agility		Business Planning		Business Structure		Business Development	
AS1	Insurance	BA1	Hazards and consequences	BP1	Business Intelligence Frameworks	BS1	Roles and Responsibilities	BD1	Staff engagement & Involvement
AS2	Internal & External Situation Monitoring & Reporting	BA2	Connectivity Awareness	BP2	Connectivity	BS2	Internal Resources	BD2	Communications and Relationships
AS3	Risk management & Planning	BA3	Corporate Security frameworks	BP3	Long term performance requirements	BS3	External Resources	BD3	Research, Innovation & Creativity
AS4	Robust Processes for Identifying & Analysising Vulnerabilities	BA4	Adaptive Decision making	BP4	Information and knowledge collection frameworks	BS4	Silo Mentality Management	BD4	Continuous Improvement frameworks
AS5	Recovery Priorities	BA5	Exercises	BP5	Operating and Licencing frameworks	BS5	Staff Talent & Succession planning frameworks	BD5	Corporate Social Responsibility

Table 22: Organisational Resilience Measurement Maturity Matrix framework. Source: Author

The ORM3 framework pulls together the factors that both McManus and Stephenson identified within their frameworks, but also highlights that there are gaps within the current understanding of resilience. Denyer's academic review of organisational resilience identified that organisational resilience was "the ability of an organisation to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper." [649] This is the same definition used in BS65000. While the definition focuses on the ability of the organisation, it does not highlight the importance of investment into staff capability, training and competence management, or the importance of managing change and disruptions. It also fails to consider mechanisms to support effective Change Management. Based on the research findings, the next section discusses in detail the various elements of the ORM3 framework.

8.5.2 Defining the Elemental Components

Having defined the elements and workstreams of the ORM3 framework, the final step was to develop the various components of each element, which would assist in providing the ability to assess the element using three individual components. The intent was to enable an individual to score the element against the three components. The approaches taken by McManus and Stephenson was to give each of their elements a score, based on questions asked during an interview with the leadership team of the organisation. The approach to be used for the ORM3 framework was different. The intent is to provide a simple tool interface that members of the organisation would complete, scoring each element using the three components discussed below. This approach would provide a greater level of detail, based

[649]Denyer D., Organizational Resilience: A Summary Of Academic Evidence, Business Insights And New Thinking, BSI and Cranfield School of Management, 2018.

on the observations of the organisational staff, allowing a cross-organisational observation on how the staff are experiencing the various resilience elements. Each element obtains three independent scores for the activity being witnessed, the behaviours being observed, and the quality of the evidence being captured and circulated to demonstrate that the activity was being conducted at the appropriate level.

8.5.2.1 Activity

This component focusses on the type of activity that the organisation should be conducting, based on the level within the maturity model. Each element has six levels of activity within the maturity framework, ranging from non-existent up to the organisation being regarded as an industry leader and delivering best practice, with others seeking to replicate the practices and processes that they are conducting. Within the tool, individuals are tasked to give each element an activity score, based on what they have observed within the organisation and align it against the narrative that best suits their observations (Figure 80). This will then provide an element activity score and a narrative detailing what is being observed.

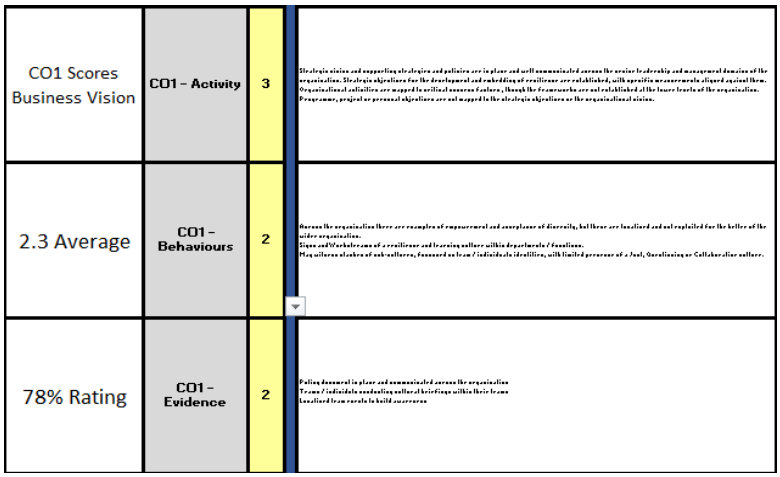


Figure 80: ORM Element Scoring Mechanism. Source: Author.

8.5.2.2 Behaviour

This component was focussed on the type of behaviours that the individual is observing within the organisation as it is delivering the activity required within the respective element. It sets out what behaviours the organisation should be conducting, based on the level within the maturity model. As with the Activity measure, each element has six levels of behavioural activity within the maturity framework, ranging from non-existent up to the organisation being regarded as an industry leader and delivering best practice, with others seeking to replicate the behaviours that the organisation is demonstrating. Within the tool, individuals are tasked to give each element a behavioural score, independent of the activity score, based on what they have observed within the organisation and align it against the narrative that best suits their observations. This will then provide an element behavioural score and a narrative detailing what is being observed.

8.5.2.3 Evidence

This component describes how the organisation is reporting and demonstrating the quality of the activity it is undertaking, and the behaviours that it is demonstrating, through the evidence that it is capturing. As part of the resilience element score, if the evidence is not present on whether the activity is being done effectively and in an ethical manner, then the quality of the delivery of the actual resilience element is brought into question. As with the Activity and Behaviour measures, each element has six levels of

expected evidence frameworks and documents that should be in place within the organisation entered into the maturity framework, ranging from non-existent up to the organisation being regarded as an industry leader and delivering best practice through effective reporting, governance and assurance. Within the tool, individuals are tasked to give each element an evidence score, independent of the activity and behaviour scores, based on what they have observed within the organisation and align it against the narrative that best suits their observations. This will then provide an element evidence score and a narrative detailing what is being observed.

8.5.2.4 Resilience Element Value and Efficiency Score

Once the three scores have been captured from the individual analysis, the tool creates a resilience element score and an element efficiency score. The element score provides a value that can be used to benchmark the element, as reported on by the organisational staff. The efficiency score is used to assess how effective the organisation is delivering the resilience element. It takes into consideration the score given for the activity, then factors in the quality of the behaviours being observed and the level of evidence being used to demonstrate how the activity is being delivered.

The individual resilience value for each element is obtained using the formula in equation 1:

$$\mathbf{(A_n+B_n+E_n) / 3 = Rv_n} \qquad \text{(Equation 1)}$$

Where A is the activity score, B is the Behaviour score, E is the Evidence score; and RV is the Resilience Value, with "n" being the number of participants in the questionnaire.

For example, if three participants had responded, this would generate three independent scores for each element within the ORM3 framework, as shown below:

Participant 1 would generate value: $(A_1+B_1+E_1) / 3 = Rv_1$
Participant 2 would generate value: $(A_2+B_2+E_2) / 3 = Rv_2$
Participant 3 would generate value: $(A_3+B_3+E_3) / 3 = Rv_3$

To obtain an Organisational Resilience value for each element, based on participant input, then the resilience value for that element is calculated using the following equation:

$$\mathbf{(Rv_1 + Rv_2 + Rv_3\ldots + Rv_n) / n = Rv_{org}} \qquad \text{(Equation 2)}$$

Where RV_{org} is the organisational aggregate score for that element.

The element efficiency score for each element is obtained using the formula:

$$\mathbf{((B_n/A_n) + (E_n/A_n)) \times 0.5 = Re_n} \qquad \text{(Equation 3)}$$

Where Re_1 is the Resilience Efficiency value.

To obtain an Organisational Resilience efficiency value for each element, based on the feedback from the various members of the organisation, then the resilience efficiency value for that element is calculated through the following equation:

$$(Re_1 + Re_2 + Re_3 \ldots + Re_n) / n = Re_{org} \qquad \text{(Equation 4)}$$

Where Re_{org} is the Organisational Resilience efficiency aggregate score.

By utilising these formulae, the ORM3 framework can present each element in terms of its resilience value and its resilience efficiency score. The tool can be used to review how each individual staff member graded each element, or it can deliver an organisational value for each element. This flexibility affords the leadership team the ability to drill down into the organisation to identify where areas may be experiencing resilience element issues, allowing for upstream engagement before the situation becomes disruptive to the organisation.

8.6 THE COMPLETE ORGANISATIONAL RESILIENCE MATURITY MODEL FRAMEWORK

The organisation would identify various members of the structure to complete the scoring questionnaire, providing independent scores from each individual, which would give an organisational average score for that element. This approach would be taken for the 28 separate elements, which would result in the creation of an average score for each element, decided by the various individuals chosen by the organisation. This would provide the initial benchmark score for the organisation, as shown below. Individuals score the element components on a sliding scale from 0 to 5, which is aligned against a source maturity framework. The table starts with the score being based at a value of "3", and a narrative that corresponds with that value, with the individual reviewing the provided narrative and deciding whether their organisation is at a higher or lower level to that described within the narrative box, and amend the score accordingly.

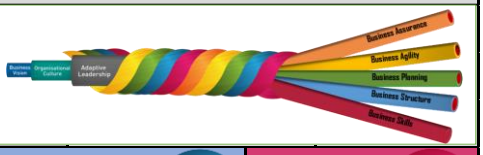
Strategic Core										
CO1	Business Vision									
CO2	Organisational Culture									
CO3	Adaptive Leadership Framework									
Business Assurance		**Business Agility**		**Business Planning**		**Business Governance and Structure**		**Business Skills & Development**		
AS1	Insurance	AG1	Hazards and consequences	PL1	Business Intelligence frameworks	ST1	Roles and responsibilities	SD1	Staff engagement and involvement	
AS2	Internal and external situation monitoring and reporting	AG2	Connectivity awareness	PL2	External Connectivity	ST2	Internal resources	SD2	Communications and relationships	
AS3	Risk management and planning	AG3	Corporate security frameworks	PL3	Long term performance planning requirements	ST3	External resources	SD3	Research, innovation and creativity	
AS4	Robust processes for identifying and analysing vulnerabilities	AG4	Adaptive decision making	PL4	Information and knowledge collection frameworks	ST4	Silo mentality management	SD4	Continuous improvement frameworks	
AS5	Recovery priorities	AG5	Exercising	PL5	Operatiing and licencing frameworks	ST5	Corporate Social Responsibility	SD5	Staff talent and succession planning frameworks	

Figure 81: Organisational Resilience Management Framework Source: Author

The framework (Figure 81) has been developed through the analysis of several maturity frameworks, discussions with various industry leads and the results of the five research workstreams. This has provided a very detailed framework that has been developed to provide a total of 504 potential values that can be entered into the framework. This framework is developed to then provide each scored element with a rating, based upon the three scores, and an efficiency score, providing an individual score for that element based on the moment of scoring. The tool is designed to collect the various scores from all individuals involved in the scoring of the organisation and produces an overall element score based on their feedback. Once all the scores are collated and processed, the tool will then produce an overview of the current situation within the organisation, based on the score and the efficiency rating that each element has received, as shown previously in Figure 80. The tool is designed such that if no value has been calculated, the field will remain yellow. Once a value is collected it will change colour.

The tool also produces a dashboard (Figure 82), based on the values collected, benchmarking where the organisation is at the moment of assessment, providing a clear understanding of how the employees see the organisation. This provides a visual representation of the organisation's resilience profile, analysing the overall organisational profile, and each of the six workstreams, based upon the values obtained during the initial assessment completed by the staff. By putting these various reporting tools in place, the senior leadership team of an organisation can quickly observe how the workforce is picturing the organisational resilience capability of the organisation. As the assessment delivers a holistic view of the organisation, it can provide a clear picture of where the staff see the strong and weak points of the organisation.

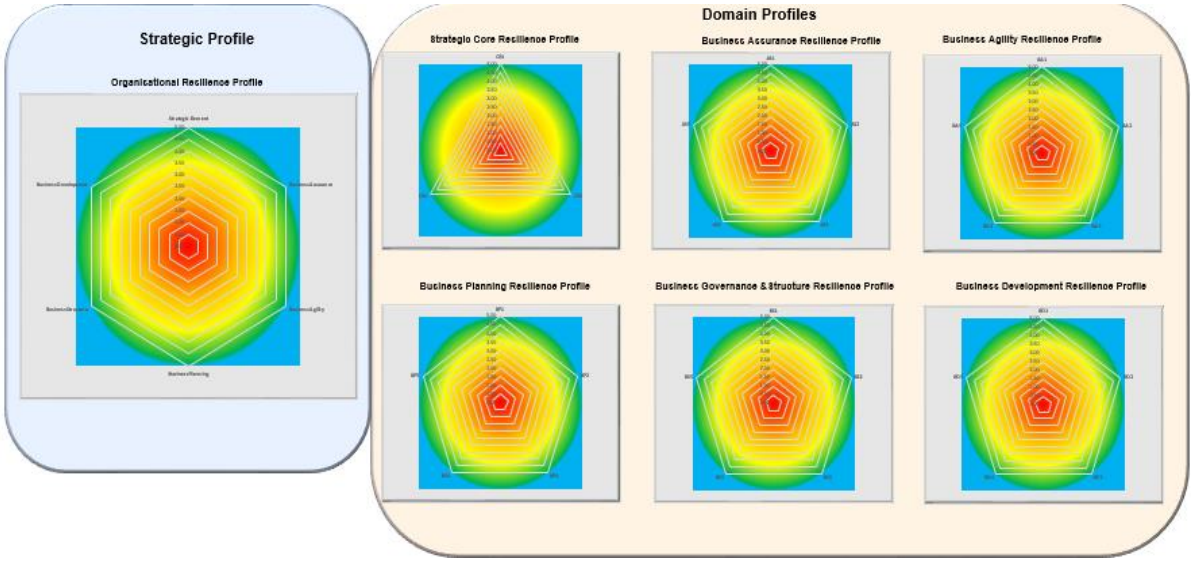


Figure 82: ORM3 Framework Reporting Dashboard. Source: Author.

8.7 SUMMARY

Chapter 4 has developed the business case for building a culture of resilience within an organisation, while Chapter 7 detailed the key areas into which investment would need to be channelled to build and sustain Organisational Resilience. This chapter has taken those key areas and developed the approach and components required to create a framework to measure the level of an organisation's resilience. The ORM3 framework has utilised the lessons learnt from the detailed analysis of the case studies of the military and Industry organisations, as well as the outcomes of the military live case studies conducted as part of the research framework. By understanding the concepts of both McManus' and Stephenson's frameworks, the researcher has been able to apply the research findings to the previous work conducted within the Organisational Resilience domain.

Review of Stephenson's and McManus' templates highlighted gaps in their models at the strategic level. The ORM3 framework addresses this through the three strategic core components which provide the strong central strand around which the five business functional domains are wrapped. Using the research into both the military and the rail industry, the research highlighted the benefits and impact of developing the components of resilience within the organisation. The research also highlighted that resilience is a holistic outcome of developing the various strands, with the components mutually supporting other elements within the framework. The presence of a strong guiding principle or vision statement, supported through cultural frameworks and organisational leadership, is critical for developing ~~a~~ core resilience within the organisation.

As both the military and rail industry have experienced, poor leadership and a lack of a long-term vision can impact on the capability for the organisation to effectively plan and deliver a positive return on investment. For the military, this moment was the strategic failure of the Iraq campaign; for the rail industry it was the strategic impact to the UK economy caused by the failure of the May 2018 timetable roll out, with the surveyed staff indicating that the industry was failing to work in a cohesive manner. Both events tarnished the reputation of the respective organisations, leading to multiple reviews and soul-searching into the issues that had occurred.

Linked to systems thinking~~,~~ and effective governance frameworks the right configuration of the organisational structure~~s~~ also impacts on how the organisation maintains its capability. The military on operations is a set of many smaller systems working together to deliver the task. The system of systems approach provides a level of flexibility and redundancy across the organisation, enabling it to respond and morph quickly to face a disruptive event. Flexible structures and a networked framework also provide this resilience capability, enabling information and intelligence to rapidly travel across and through the network. These frameworks are supported through a set of strategic guidance documents, such as doctrinal publications, which provides a single form of operational practice to the organisation, providing an agreed base level of capability which can be used during the strategic planning phases.

The importance of developing staff capability is an area into which the military allocate a substantial amount of financial support and resource. The level of investment develops the capability of the individual as well as the team. At the operational level the detailed lessons learnt approach develops concepts, doctrine, training and operational insights to improve how the organisation operates, while at the tactical level this is reproduced through the war-gaming and course of action reviews, allowing the command staff to review and amend, or cancel, combat activities. This level of insight and preparation allows individuals and teams to identify potential threats and issues and adjust accordingly. This process is supported by detailed information gathering and analysis, along with an embedded organisational learning framework.

This level of investment was not as evident within the observed industry case study organisations. While the Operations department has a training governance framework in place, as well as a strategic lead for training governance and assurance, the Strategic Planning department had no such structure. The review identified a lack of a formally detailed learning needs analysis tool, with training being developed based on what experienced individuals thought was required. Within the Operations department there was the understanding of the benefits of Joint working, either with internal elements or external agencies. Within the Strategic Planning department there was a more siloed approach. Both functions highlighted the need for better personnel development, with the Strategic Planning department clearly suffering from managerial, specialist knowledge and under-manned team issues.

The ORM3 framework has shown the importance of applying a holistic approach to resilience building, with the strategic components being fundamental to the success of the venture. Organisational Resilience requires a level of maturity and understanding of the key business functions and an acceptance that the organisation will never be totally resilient; there might always be an event which could destabilise the organisation. While technology, frameworks and doctrine provide the enabling components, the critical element is the people within the business. These individuals provide the agility and determination to continue functioning when in the midst of a disruptive event. This is as true on the battlefield as it is in the business sector. It is just the currency that is different.

CHAPTER 9: APPLICATION OF RESEARCH, NEXT STEPS AND CONCLUSION

9.1 INTRODUCTION

This research used a study of the military on operations to identify lessons in Organisational Resilience that can be applied to UK industry. Set against this was a study of the GB rail industry to identify current resilience challenges and determine methods to build and improve it. Due to the size of the rail industry, the study focussed on the infrastructure manager, restricting the research gathering to the two key functions of operational incident management and strategic planning. This chapter provides an overview summary of this research, its findings and discussions of potential further work that could be conducted to build on this research. The research findings are presented in relation to the aim, objectives and research questions that were stated at the beginning of the thesis.

9.2 RESEARCH FINDINGS

The definition created for Organisational Resilience within this document was derived from a detailed review of the military on operations, as well as the analysis of certain issues within the wider GB rail industry. It has been created through implementation of the five-tiered research gathering methodology that is discussed in Chapter 3. Information was gathered through questionnaires, interviews, case studies and live observations of complex events. Using the acquired information, it was postulated that organisational resilience is a people focussed capability based on strategic co-ordination of business functions.

The thesis aim was the development of the ORM3 framework to unite various operational functions within the business, creating an internal resilience culture, developed from capability and the understanding of potential threats and crises, which can be implemented through strategic leadership. The need for the ORM3 framework is analysed in Chapter 4, and the development of the ORM 3 framework is discussed in detail in Chapters 7 and 8, through identifying how the military developed Organisational Resilience on operations and what lessons could be applied to the rail industry. To achieve this aim, the following objectives were developed:

- Conduct a review of the current literature in the organisational resilience sphere to identify key ideas and concepts;

- Conduct a case study review of military operations to identify lessons that can be applied to the rail industry;

- Conduct the development and implementation of a live case study model to observe military personnel in complex dynamically changing environments to understand how they develop and maintain Organisational Resilience frameworks;

- Conduct a review of a key element of the rail industry to identify the current resilience challenges and what lessons need to be applied; and

- Using recognised Organisational Resilience tools, develop these lessons into activities that can be applied to the rail industry to develop organisational resilience capability.

The research question determined included the following areas for investigation:

- A review of the current literature on Organisational Resilience;

- A review of the current resilience situation in the GB railway industry;

- A review of the UK military operational practices and procedures and how the military builds resilience on operations; and

- Case study analysis of the UK military on operations.

The starting point for the thesis was to determine and define a clear understanding of what was meant by Organisational Resilience and to establish a clear baseline from which to conduct this research. Previous work conducted through national and international organisations was reviewed to assist in this element of the thesis, which is covered in detail in Chapter 2. The analysis of recent data highlighted that the term resilience is used across numerous disciplines which can range from engineering to the social sciences. This provided the challenge to clearly define the focus of the research and the meaning of the term for this research. Further investigative work into the subject identified that the subject area had minimal academic scrutiny within the UK, with most of the published work reviewed in Chapter 2 being developed by practitioners or organisations. It was also noted that most of the material was focussed on a business continuity framework, rather than Organisational Resilience, a position that was determined as being symptomatic of the current situation within the UK, with organisations mistaking business continuity as resilience.

As part of the research journey, this thesis reviewed the frameworks created by McManus and Stephenson to help define the key areas of Organisational Resilience. McManus' model was used to assess the military during the planning and implementation phases of a live exercise to identify whether her model provided an accurate framework to apply to organisations to develop their Organisational Resilience. Based on this analysis, ORM3 was developed, which was used to identify lessons from the military that could be adapted and applied to the rail industry. This created a framework based on six domains which can be used to assess the quality of the organisation through an assessment of the relevant resilience criteria that are located within each domain. The ORM3 model brings together the key elements of both the McManus and Stephenson models, developing them for the modern business

space and placing at its core critical activities observed when analysing the military on operations. Unlike Stephenson's model, which states there are two dimensions to Organisational Resilience, research into the military campaign planning methodology identified that there existed a strategic core and several tactical domains that collectively deliver organisational resilience capability. The importance of culture and an adaptive leadership framework aligned to the vision for the organisation was clear in delivering a successful framework.

Using the Stephenson and McManus models as a base layer for reviewing how organisations develop Organisational Resilience enabled a comparison of the military operational planning process against one of the models. Subsequently, several alterations were made to the McManus model, which was used as this was the original concept. This adaptation of the model and the observation of the military live case studies resulted in the identification of 28 key resilience factors which were positioned within the six domains, as opposed to the 3 domains present in the McManus model, or the 4 domains present in the Stephenson model.

9.3 ADDRESSING THE RESEARCH QUESTION AND HYPOTHESES

As stated in Chapter 1, the key objective of this study, was the identification of key lessons that the rail industry can learn from the military on operations and the creation of an Organisational Resilience model through which to apply these lessons. To enable success in answering of this question, there were seven hypotheses that required investigation to answer the research question:

- H_1: Within a dynamically changing situation within limited situational knowledge, the military develops its resilience capability through the application of an adaptive planning and the re-shaping of its organisational culture.

- H_2: Within a hostile environment, the military has developed the capability to successfully plan, respond and recover from a disruptive event through effective preparation, education and training of its personnel.

- H_3: In order to successfully manage a complex, dynamically changing problem, the military develops and maintains an effective multi-agency approach, employing a systems-thinking approach.

- H_4: To remain effective when managing the response to a disruptive event, the military develops and maintains a shared organisational ethos and culture across all the departments.

- H_5: To support the implementation of tactical operations, the military develops and maintains a clear strategic direction and end-state that is shared across all affected departments.

- H_6: Organisations without a clear understanding of resilience and the supporting activities fail to improve their resilience levels after reviewing previous events and impacts.

- H_7: The GB rail industry, through a lack of clear understanding of the importance of Organisational Resilience and the supporting activities, delivers a limited level of capability and performance.

In response to H_1, the military planning process has been developed to provide an agile planning capability, allowing staff to rapidly amend plans as a situation changes or develops, building resilience into the process through flexibility. This provides a level of embedded Change Management capability and review focus across the team to ensure that the final plan is suited to the task at hand. Regular updating of intelligence and analysis, supported through the red-teaming and war-gaming steps allows the plan to be aggressively assessed against an intelligent, dynamic opponent.

In answering H_2 the research has shown that the military have adapted and developed planning processes to include intelligence gathering and analysis activities to build situational awareness to better understand the environment, risks and potential outcomes. This allows it to build the required force structure, through the application of systems thinking, to equip deploying organisations with the required skill sets and specialists for the task at hand. This process is influenced through an in-depth lessons learnt and continuous improvement process that encompasses training and previous operational events. The research into case studies and observations from the live events also noted the impact of poor communication and inflexible leadership styles, which led to sub-optimal performance and a detrimental impact on resilience.

The research has shown that, in answer to H_3, the military develops a joint approach to planning and operations through doctrine, training, education and lessons learnt events. Exercises, such as those used for the live case study observations, showed an organisation that implements a systems approach to develop capabilities to match the task at hand. This is underpinned by the wider military values and standards framework the organisation, through this systems approach, promotes diversity of teams to enhance capability and disruptive thinking, a trait that is critical when responding to a complex disruptive event. However, when placed under pressure, either through limited time windows or missing information, it was noted that individuals revert to their comfortable operating model, which may impact on the performance of the team. This highlights the importance of the changes to the various practices and procedures to be sustained at a cultural level if the organisation is going to operate successful under pressurised environments, reflecting the need for a Learning Organisation approach.

The exploration of the ethos and cultural mechanisms of the military, in response to H_4, demonstrated through the various traditions, myths and practices, showed a level of shared ethos and culture. This was supported, and further developed, through the shared learning on pre-operations training, the development of values and standards training packages, and the investment in cultural understanding

and the development and use of joint service doctrine to build shared understanding and capability. During pre-operations training and staff development there was the focus on core skills, such as critical analysis, systems thinking, leadership and joint working.

In response to H_5, the research findings also demonstrated an organisation that failed to invest effectively in its workforce, in turn damaging its ability to manage large disruptive events through educated, resourceful and empowered teams. Within the domain of incident management there was a sense of the cult of the individual, while in the strategic planning environment there was a clear picture of a dysfunctional, siloed and under-staffed organisation that failed to listen to or understand the needs of the industry it was supporting. The lack of a coordinated approach to the act of planning is detrimental to developing organisational capability; the activity provides the framework for subordinate units or functions to conduct their planning processes to deliver the required strategic outcome. Well-resourced teams, with the correct experience, capabilities and systems, supported by detailed interaction between the planning strata and effective leadership, as shown in the live case studies, provides a robust yet agile framework for strategic planning.

In response to H_6, there were limited lessons identified or lessons learnt processes being captured and few examples of a continuous improvement framework being in place. Finally, there was a culture of hostile and aggressive leadership, which created an environment of blame and fear. This culture naturally deterred staff from willingly offering potential continuous improvement ideas, detailing errors that had occurred or disruptive thinking events to help promote innovation across the department. While the military conducted lessons identified reviews at all levels and at various points of the activity to capture raw thoughts and post review considerations, no such extensive framework, or lessons learnt library and dissemination process was present within the departments reviewed. This creates a consistently re-active mechanism with no clear drive to promote pro-active behaviour within the industry, therefore not developing an organisational resilience ethos across the wider organisation.

H_7 has been answered through the detailed examination of the rail industry in Chapter 5, supported by the research findings in Chapter 6 and the identifications of the factors impacting on the effective delivery of resilience; when compared against how the military develop Organisational Resilience there are several issues that have been discussed. The analysis of the railway demonstrated a strategically fractured organisation which is hampered by a lack of effective government leadership and strategy, a poorly constructed strategic operating framework, the Network Code, and a franchise awarding methodology that promotes siloed planning fuelled by the spirit of competition, rather than collaborative planning to deliver the best for the fare paying customer.

In answering the research question framework and testing the several hypotheses, the researcher developed the ORM3 framework to assist industry in developing a more effective approach to building Organisational Resilience. This model was developed using a systems approach, based on how the military build and manage its capability on operations, as well as incorporating the principles of a

Learning Organisation and High Reliability Theory, supported with previous lessons from McManus, Thompson and Yardley. It was designed to promote a holistic approach to building organisational resilience within industry.

9.4 DEFINING A NEW MODEL OF ORGANISATIONAL RESILIENCE

Based on the research the full proposed definition of organisational resilience is:

> "*A people centric capability based on the strategic co-ordination of organisational resources, adaptive leadership, intelligence, communication and staff development which enables the identification and analysis of strategic threats through shared situational awareness. This enables the preparation, education and contingency planning to establish effective resistance to hazards, multi-level response, recovery and learning to maintain operational sustainability*."

As part of the wider discussion on the subject, the development of a tool for implementing Organisational Resilience was developed. The ORM3 framework, discussed in detail in Chapters 7 and 8, provides a framework, building on the work of McManus and Stephenson models, to enable an organisation to build and review its level of Organisational Resilience capability. ORM3 incorporates the key components that were included in both the previous models, while also integrating the knowledge from the research obtained from observing how UK military teams prepared to develop resilience on operations.

The enhancement of the framework with the research conducted within this thesis has resulted in a comprehensive model which, if used correctly, can then be mapped against BS:65000 Organisational Resilience, delivering a holistic means to develop Organisational Resilience against the standard. The ORM3 model can be used to create a focused approach within an organisation to address areas of concern as part of a lessons learnt process, while also informing the strategic planning process at the Board Level.

9.5 PERSONAL OBSERVATIONS ON RESEARCH LIMITATIONS:

The research employed five research strands within the methodology. These were:

- The review of previous military resilience building campaigns to identify potential lessons and factors that may be used in the development of the live case study.

- A detailed analysis of recent military exercise documentation, pulling key components from those exercises and tailoring the components to produce a complex, multi-layered strategic disruptive event within which the command teams operated.

- The observation of military battle-group headquarters during their preparation phase for deployment on operations, with the original McManus framework applied to obtain an Organisational Resilience framework score.

- Review of the questionnaire responses obtained from both the military and industry audiences. The audiences were able to review their submissions prior to submitting them. The questionnaires were captured either directly into the electronic analysis tool, or through paper copies which were then uploaded.

- Conducting 20 interviews with serving military personnel of various ranks and positions of authority to obtain a greater understanding of the situations. These interviews were reviewed, with key words or phrases being pulled out and used to develop and analyse the framework of key leadership qualities for developing organisational resilience.

The evaluation of the literature within the resilience and business domains identified that there was an extremely limited selection of documents relating to both the development and maintaining of Organisational Resilience and the methods used by the UK military on operations and training exercises. Recent publications centred more on how the recent campaigns in Iraq and Afghanistan had failed to deliver their strategic objectives. Several publications discussed the importance of military virtues and leadership capability, as well as the effectiveness of military personnel on operations, but most of these publications were written subjectively with little evidence or objective research to support their findings.

The nature of the research question was narrowed during the investigation phase, with the selection based on personal observations during the transition from military to industry by the researcher. Research information gathering and analysis became protracted as multiple data collection streams were conducted consecutively. This imported the potential risk of key information being lost due to the time taken for analysis. This was mitigated through digitising the returns, with paper copies kept until the data was uploaded, with the interview notes being captured directly to electronic means for quick analysis and codifying.

To ensure that there was a fair review of the military and industry, two military headquarters were observed independently, this prevented researcher bias. Within industry, the two departments selected were those within the infrastructure manager that had a major impact on the successful running of the railway. To ensure fair responses were obtained, the questionnaires were given out across the multiple strata of leadership and management personnel.

9.6 BUILDING THE BUSINESS CASE FOR ORGANISATIONAL RESILIENCE

As discussed in detail in Chapter 4, the ability for organisations to invest in the development of resilience requires the leadership to be able to develop a clear and auditable business case, with identifiable

return on investment and evidence-based analysis. Currently, as the literature review and research has shown, in the rail industry this approach is fractured, resulting in an inability for the senior leadership to effectively invest in building Organisational Resilience, due to a failure to invest in multiple areas shown within the ORM3 framework. To be able to invest definitively in Organisational Resilience, there is the requirement to create a business case that is clearly articulated as the case for a new piece of technology or rail maintenance equipment. The issue with developing a business case for Organisational Resilience activities is that it is a prevent and prepare activity. It is therefore difficult to clearly articulate a defined benefit by the way of a balance sheet, yet the business case must be able to compete aggressively against other investment requirements placed before the executive board.

The ORM3 framework provides the means for an organisation to conduct a clearly auditable activity to identify potential areas of risk, or under-investment within an organisation, which may contribute to a crisis. When mapped against risks already identified and other potential risks and outstanding issues, it starts to provide the evidence required to quantify the detrimental impact of poor resilience. If correctly supported by evidence, the financial impact of previous events, and reviewed under the continuous improvement and lessons learnt practices, then a failure to invest can be met with an impact cost if the disruptive event occurs again. This starts to build an evidence-based approach to business case development. The review of the military teams experienced in managing disruptive events demonstrated the links between the various elements of the ORM3 framework, while the investigations into the rail industry identified a failure to learn re-occurring lessons when managing disruptive events. This significant factor, which has also been reviewed by industry leads in two cross-sector conferences, demonstrates the contribution that this research has for industry. The analysis of the military organisations within the live case study clearly identified that an improvement in resilience capability resulted in a measurable performance improvement, while also highlighting the importance of effective leadership, a clear vision and embedding the correct culture.

9.7 RESEARCH IMPACT

Due to the subject matter, this research project has occurred in a dynamic space within UK industry, resulting in several activities which have utilised the research to improve current performance. Though the subject matter was predominately focussed on the military to obtain key lessons and observations to build a model for industry, the application of the various research streams resulted in both the military and industry organisations receiving several benefits. The following sections discuss these benefits, with the supporting tables showing a benefit overview and the impact that the various benefits delivered to the military and industry. The benefits were spread across performance enhancements, staff capability and academic research and knowledge acquisition.

9.7.1 Military Organisational Benefits

Table 23 highlights the impact that this research had on the military and how it has been applied. The research has enabled a level of joint understanding and capability development across several areas of the military.

Ser	Research Strand	Impact	How it was applied
1	Case Studies	Observations of strategic issues between military and political strategic planners within the Iraq Campaign	Observations captured within Peer reviewed British Army Review lessons from Conflict doctrine, used to educate middle management officers on operational planning issues and risks as part of the Military Analysis Programme.
2	Live Case Study	Observations of development of effective training and development of teams to build capability and resilience. This led to the development of a training analysis tool, now utilised to develop effective military training solutions.	The training analysis tool has been used for the development of strategic doctrine writing and intelligence gathering courses for the military.
3	Live Case Study Personnel Interviews Questionnaires	Development of the organisational resilience maturity framework and the ORM3 tool.	The research into the development of the ORM3 and training analysis tool were used in the development of military doctrine. The research was used to inform the re-drafting of JDP 02 – Defence Support to UK Resilience Operations doctrine publication.
4	Research into Industry Industry Questionnaires	Development of industry presentation and briefing on rail industry resilience for Defence Joint Resilience Liaison Officers (JRLO)	Development of military understanding for JRLOs on the capability of the rail industry to manage the impact of major disruptive events, incident response procedures and joint working methodologies for the JRLO community.

Table 23: Military Organisational Benefits from the Research

The effective application of the various workstreams provided a level of knowledge and a change in certain activities that improved the processes within the military. The lessons obtained from the detailed review of the Iraq campaign were incorporated into the ongoing officer education programme, while the knowledge obtained on various international approaches and direction to building and sustaining resilience was incorporated into the development of JDP 02.

9.7.2 Industry Lessons

As well has having an impact on the military, the research was applied to several areas within industry to develop or enhance capability. Table 24 discusses these areas and how the research benefitted the organisation. Where applicable, evidence is also supplied to demonstrate the benefit impact achieved through the various research streams. The key benefits were identified to be within incident management, strategic planning and staff capability development, though there were also minor impacts within recruitment and cultural change.

Ser	Research Strand	Impact	How it was applied
1	Industry questionnaire Military questionnaire Military interviews Literature review Military live case study	Development of an incident management framework from operational to strategic levels.	Creation of a strategic, cross-industry incident management framework for frontline Rail incident management officers operating at various levels within the industry. The framework consisted of eight training interventions, across various operating levels, focussing on building staff capability and a joint way of working. The processes were designed upon the JESIP and MoD decision making processes.
2	Industry questionnaire Military interviews Literature review Military live case study	Development of a learning analysis tool for greater staff capability.	Based on research findings, the researcher developed the Industry Holistic Approach to Learning and Development Tool (IHALD), used for the development of training interventions. The IHALD tool has subsequently been used to develop training interventions for both industry and military organisations.
3	Industry questionnaire Literature review Military live case study	Strategic planning capability development through enhancement of framework	Review of the current processes and development of 21 change components to improve the current strategic planning capability. Focused interventions to build staff capability, better governance and assurance mechanisms and a clearly defined, cross-industry single way of working.
4	Industry questionnaire Military questionnaire Military interviews Literature review Military live case study	Industry capability development obtained by cultural change through safety compliance and quality measures. Defence engagement for recruitment of skilled personnel and post graduate workshops.	As part of the business development strand, development of a strategic framework for alignment and recruitment of key skills for the industry from the Military community. As part of the wider development of industry capability, cross industry workshops delivered on rail industry incident management. This is delivered via the University of Birmingham Post Graduate programme in Railway Engineering. The workshop is delivered to each course to help build greater understanding and awareness of the need for joint ways of working when managing large scale disruptive events on a railway. This course is delivered annually to an international student base.
5	Industry questionnaire Military interviews Military live case study	Developing a shared national standard of organisational resilience	Working as part of the consultancy team to the Civil Contingencies Secretariat on the development and review of the first national standard in organisational resilience, BS:65000 Organisational Resilience. On completion of the document, delivered a joint briefing with Head of the CCS at the 2014 Business Continuity Institute International Conference in London. On the development of the resilience framework, the researcher was asked to brief to the Corporate Security and Resilience Networks (CSARN) annual conference in 2015 to promote the development of organisational resilience within the London business district.

			Subsequently the researcher has presented to the BCI International conference in Holland (Jun 2019) and at the Resilience Association Congress (Nov 2019).
6.	Industry questionnaire Military questionnaire Military interviews Literature review Military live case study	Development of academic interventions at BSc and MSc levels, delivered through the UK Resilience Centre.	The researcher was commissioned to write and deliver modules on the BSc and MSc Disaster Management and Emergency Planning academic programmes for the University of Wolverhampton, delivered through the UK Resilience Centre. This is focussed on developing a better level of awareness of Organisational Resilience across industry practitioners.

Table 24: Industry Organisational Benefits from the Research

A critical impact from the research was the development of the corporate incident management framework, created through the research findings and a greater understanding of how the military and emergency services operated within complex and dynamically changing situations. Having conducted the initial review, identified the concerns and conducted an initial review of the key stakeholders, it was clear that there were differing levels of pressure across the senior stakeholders. The analysis was used to build a greater understanding of the situation and strategic drivers for change that were impacting on the organisation.

Figure 83 depicts a clear visual demonstration of the change drivers and the impact that the drivers where having on the company during the period of the project. The Change Kaleidoscope model enables the means to pull together a range of contextual features pulled together within a comprehensive framework. [650] The model consists of an external ring which looks at the strategic issues, with an inner circle that focusses on eight change factors of:

- Time
- Scope
- Preservation
- Diversity
- Capability

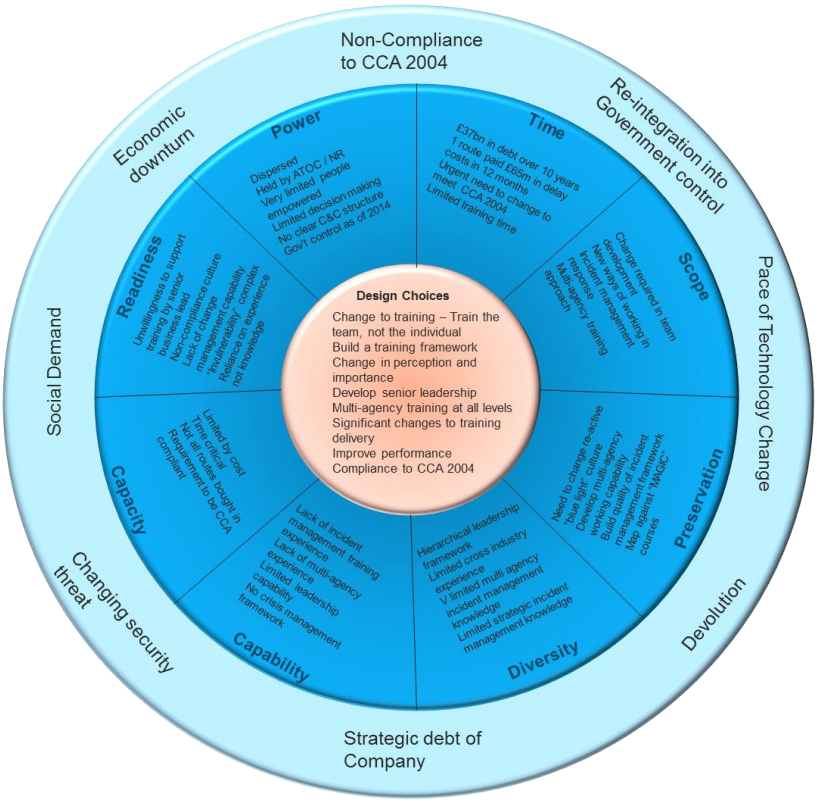


Figure 83: Incident Management Project Change Kaleidoscope. Source: Author

[650] Balogun J. and Hope Hailey V., Exploring Strategic Change, 2nd Edition, Prentice Hall Financial Times, Pearson Education Limited, Harlow, 2004, pp 56-93.

- Capacity
- Readiness for Change
- Power

Using this tool, key areas of concern were identified within the company when it came to plan for a successful project implementation and sustainment phase. Pressures caused by government and legislation, as well as a desire to focus on a more cost effective, multi-agency approach by the senior leadership team, resulted in the project being constrained by financial, business and cultural constraints. Figure 83 is the pictorial representation of the various factors that were impacting on the project.

Figure 84 represents the changes made to the railway infrastructure manager's incident management training framework. The left side of the image is the pre-research training framework. There was little focus on the training and development of the station staff, joint ways of working between track and station staff, and few training interventions at the middle management level. There is a limited training framework, with no training or collaboration between the middle and senior management level to practice collaborative working in a major disruptive event. On the right-hand side of the diagram is the revised framework, post-project. Emphasis has been placed on ensuring that the Rail and Station incident officers receive a similar incident management training solution, which incorporates joint ways of working.

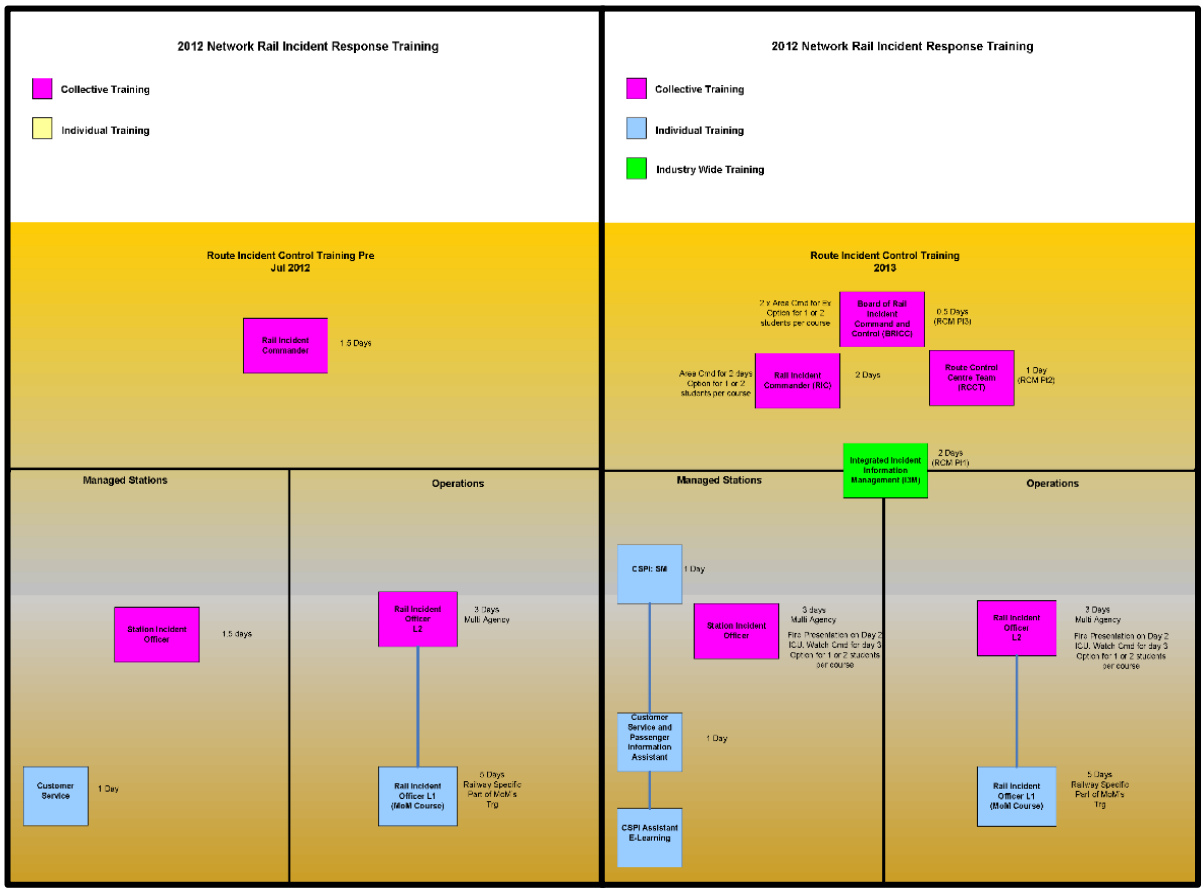


Figure 84: Incident Management Framework. Source: Author

Both courses are aimed to be multi-agency offerings, bringing into the course design the emergency services, who were recently implementing the JESIP framework. Figure 84 also shows a cross-industry information management training event, as well as collaborative training for the middle and senior management across both stations and track operations. This approach was to build the greater understanding for the need for collaborative working, information management and building situational awareness of the wider picture. There is increased investment into the lower levels of station staff, aiming to build basic incident management awareness skills to increase the resilience of the stations. At the strategic level, there were three new courses also developed, targeted either at the control room managers, or the senior route leadership teams. The third course was a joint exercise, which sought to place the individuals into roles and manage an unfolding complex disruptive event. It was designed the same way as military operational deployment exercises were developed, seeking to test critical analysis, teamwork, decision-making and maintaining situational awareness. This new framework provided a greater level of disruptive event management, in turn building the resilience of the organisation.

The new framework sought to improve the efficiency of the railways through better management of incidents, more informed communications across the industry and the development of a multi-agency approach, working closer with train operators and the emergency services. The piloting of the two strategic incident management courses, based on the findings of this research into how the military prepared for and managed complex situations, had a distinct impact on the development of the route leadership teams that were involved (Figure 85). This clearly highlighted the importance of collectively training the decision-making members of route teams to effectively manage complex events at a strategic level. The breaking down of the silo mentality that was present within the route teams and is still present across many parts of the rail industry, was key to enabling the flow

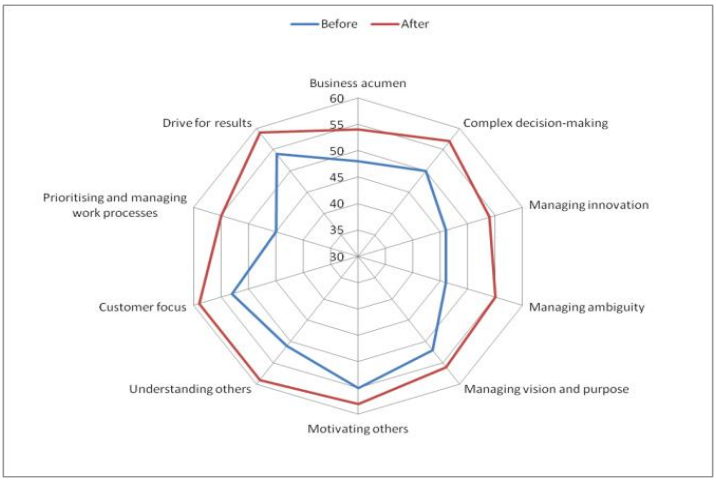


Figure 86: Incident Management Capability Improvement
Source: Author

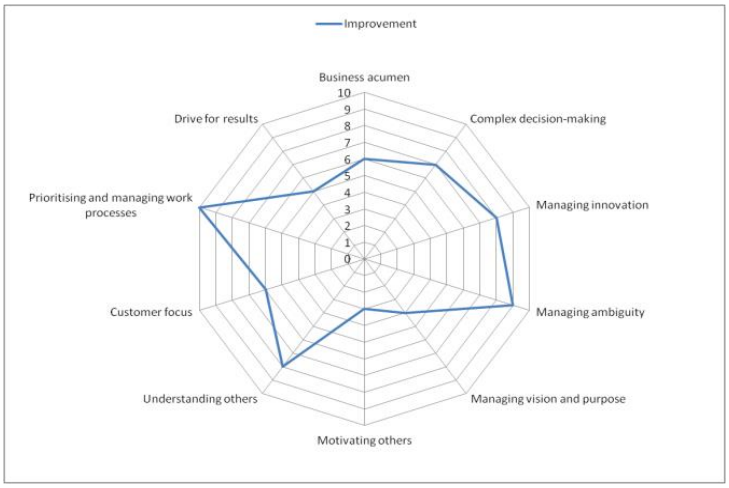


Figure 85: Strategic Incident Management Training Impact.
Source: Author

of information and the capability to be developed.

Figure 86 demonstrates the capability improvement, based on each of the 18 individuals within the route strategic team scoring their own capability at the beginning and end of the course. This self-reflection approach, based on Kirkpatrick's evaluation methodology, enabled a value to be assigned to the training impact.

9.8 PROPOSED NEXT STEPS

Further work within the development of organisational resilience within the rail industry would include the standardised approach across the industry in an initial audit process across organisations, , using the ORM3 framework, to build a clear understanding of the levels of resilience at both the strategic and operational levels. This would require a far more detailed research programme than currently undertaken, given the number of departments involved. The recommendation would be that it should be conducted in a phased sequence, initially focussing on the Infrastructure Manager organisations. The second phase should concentrate on the train operators, with the third phase then concentrating on the relevant supply chains for the industry. The final phase would then develop the framework in the strategic leadership organisations managed at government level. This approach would provide a cross-industry, multi-level Organisational Resilience framework, aligned to the national standard.

To enable this, a wider programme of research would be required, as the extent of the treatment of resilience in this study was focussed on the military methodology and the application to the rail industry via two critical functional areas. Although the literature review encompassed cross-industry issues at the strategic level, as well as operational disruptive event investigations, it is impossible for the researcher to definitively state that the proposed framework would fit seamlessly to all organisations, or how much adjustment or modification would be required depending on the role of the business. A future phase of this research would be to review organisations within the industry in detail and compare those that have few disruptive events to those that have numerous events and try to determine whether or not there is a causal link to the difference, and how the staff are managed and developed within the organisations. Each of these phases could also increase the maturity of the framework, building on the work of McManus, Stephenson and of that which is captured here.

A third work-stream of the ORM3 framework would be the application to community resilience, using the existing CCA 2004 documentation as a strategic guidance document to help implementation across community organisations and frameworks. In this period of strategic disruption, it may provide an audit and assurance framework to assist local councils in the prioritisation of activities and services to maintain community resilience, especially given that several observations have been derived from how the military sought to rebuild fractured communities within war-torn nation states. While the development of resilience within organisations may contribute to more stable communities, the use of a similar framework to rebuild and strengthen local councils approaches with their areas of responsibility is key to long-term community resilience. This research has provided a framework to enable a clearly

auditable process, providing assurance and guidance, mapped against the national standard, on developing greater resilience at organisational and potentially community level.

9.9 THESIS CONCLUSION

The purpose of this thesis was to identify lessons that industry could learn from the military on building Organisational Resilience. This would enable the senior leadership of the organisation to build a resilience framework to better survive disruptive events, created through research into how the military develops and sustains resilience on operational campaigns. The developed tool and methodology would then be used in the rail industry to enhance the resilience capability within that sector, providing a potential performance improvement in the preparation for, management of and recovery from disruptive events, as well as embedding a lessons learnt and continuous improvement methodology. To achieve this, five mutually supporting research work-streams were developed, enabling the development of the ORM3 framework. Through the mapping of military activities in a specifically designed two-week long live case study, it was possible to clearly identify that an improvement in resilience capability through lessons learnt and a continuous improvement approach also delivered a performance improvement. This research delivered several benefits to both the military and industry sectors, which have been highlighted in section 9.6. Chapter 4 demonstrated the business case for investing in an Organisational Resilience framework, while Chapters 7 and 8 articulated the principles of the ORM3 framework and how it was developed, based on the research findings.

Chapter 8 discussed in detail the development of the key aspects of the ORM3 framework. The framework consists of 28 key elements that interlink, split into six domains. A secondary output of the research, aligned to the development of resilience, was the creation of the various academic interventions for two separate academic establishments, which the researcher developed to build resilience training and education programmes for the military, industry and academic sectors. The domains are the result of the detailed literature review into building resilience, as well as how organisations learn and develop their staff capabilities, and how they effectively manage disruptive change. Within industry, the immediate impact was the development of the incident management training framework that provided the organisation the ability to map and audit its current level of staff capability, while also planning a development programme to enhance resilience. This is important not only for the continued use of the framework but also for inputting clear evidence-based analysis into the business case for investing in Organisational Resilience as a critical component of an organisation's long-term strategy. Through a clearly defined tiered approach to developing the staff capability within the organisation, the wider latent resilience of the organisation is developed through a better understanding of how to prepare, respond and recover from critical incidents and disruptive events.

In the process of developing the ORM3 framework, the research question and the supporting hypotheses have been answered. The thesis reviewed how the military developed and maintained resilience on operations, how it managed the concept of strategic planning and building the required ethos and the methods of learning. It also highlighted key issues within the rail industry and why,

currently, the industry is failing to apply the key lessons of building and maintaining an Organisational Resilience culture cross-industry.

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ANNEX A: RESEARCH STRATEGIES

Research Strategy	Approach
Survey	This strategy would enable the researcher to conduct a large amount of data gathering through the application of a questionnaire (either postal, online or completed face to face), structured interviews (telephone, internet, video tele-conferencing (VTC) or face to face), analysing documentation or observations. The researcher may choose within the strategy to use a mixture of these methods to collect the information. Whereas the case study strategy (see below) seeks to obtain a sustained amount of knowledge gathered over time on a small research group, the survey strategy seeks to obtain information from a wide research group, but at a specific point in time. The information obtained at the snapshot in time can give an impression of the validity of the research through sampling processes to determine the accuracy and viability of the research group and the determined results. The survey strategy has certain limitations when gathering and analysing information, the first being the probability of response. Most postal or online research questionnaires within the social research domain will be lucky to receive as many as 20% completed questionnaires, and there may be a concern about the validity of the information. There is also an issue about the collection of the questionnaires if a dispersed approach is taken.
Case Study	This approach would result in an in depth analysis of a single event or situation, enabling the researcher to focus on the identification of specific areas which may have wider impact. Different to the Survey approach which seeks a mass of information, this approach narrows the research area. The case study strategy seeks to concentrate on the relationships and processes which happen within the observed party. It seeks to understand the interdependencies of various factors, rather than seeking to identify and observe one in isolation. In this approach, the case study strategy results in a holistic approach rather than deal with the isolated elements. As this strategy focuses on a desire to obtain a depth of knowledge, it enables the researcher to utilise a number of approaches to obtain and analyse the data. The use of the case study strategy does have limitations as it is focussed on a small number of research events, leaving the findings open to vulnerability for criticism. The strategy also suffers from the stigma of often creating "soft data", as it seeks to focus on processes rather than measurable data. Another concern is the ability to limit the scope of research as the interdependencies may result in scope creep, which in turn may result in unwanted data being observed, recorded and analysed.
Participatory Action Research	Participatory Action Research (PAR)aims at the researcher becoming part of the group and becoming involved in the actual practice of change. PAR is attributed to the work of Kurt Lewin, which was further enhanced by Stephen Corey who initiated action research in the US shortly after Lewin's work was published. The act of PAR is the integration of a family of processes, seeking to obtain information from multiple sources, such as action learning, participatory research, classroom action research, action science, soft system approaches and industrial action research. Heavily used in education, PAR has two distinct camps. These are: a. The traditional British approach which tends to view action research as a means of research which is orientated towards the enhancement of direct practice. As Carr and Kemmis describe in their book Becoming Critical. Education, knowledge and action research, published in 1986; "*Action research is simply a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out*." This would seem to indicate that the only the direct participants can benefit from the results identified by action research methodologies, as they must undergo a period of self-reflection to obtain the potential opportunities offered by the conduction of the research project. b. Another approach, remarked on by Bogdan and Biklen in their research identified that there was the ability to utilise the wealth of knowledge obtained during the research phase to stimulate social change. In this approach the practitioner is actively involved in the cause for which the research is being developed, thus creating change from within, based on the evidence gathered during the research phase of the project. The use of PAR has risen during the last 20 years due its focus on problem solving, which makes it particularly useful to the practitioner seeking to solve business orientated problems. PAR is essentially applied research which seeks to resolve the problem or achieve the objectives set by the initial problem statement.

ANNEX B: MILITARY PERSONNEL INTERVIEW RESULTS

B1 - Questionnaire

Serial (a)	Research Area (b)	Question (c)
1	Organisation and Role	What is your role in the organisation?
2		How long have you been with the organisation?
3		Have you had any other employment roles outside of the military?
4		How would you describe the position that you are currently in?
5	Experience and Training	How many operational tours have you experienced?
6.		Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education
7.	Key Qualities	What elements do you consider important in your role as an Officer / middle management within the organisation?
8.		Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?
9.	Key Competencies	In your opinion, what competencies would you say are critical to being a leader in the military?
10.		In your opinion, what competencies would you say are critical to being a manager in the military?
11.		In your opinion, how do you see yourself within the military?
12.		If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?
13.	Collaborative Working	Have you had any formal training / education on the Comprehensive Approach?
14.		Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?
15.		Have you worked with OGDs / NGOs / Civilian security organisations on operations?
16.		In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?

B2 - Interview Profile 1

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	Company Commander with A Company - 3 Yorks. I operate at the tactical level, providing **guidance**, support and career development for my staff. I am responsible for the **tough decisions** and demonstrating **moral courage** when making these decisions. It is a requirement to demonstrate **values based leadership**.
2	How long have you been with the organisation?	I have been with the organisation since I joined the Army 14 years ago. I initially joined on a SSC but converted to an IRC.
3	Have you had any other employment roles outside of the military?	None - I went to university and from there, via the OTC, I joined the Army via the Selection board at Westbury. I then went to RMAS and Platoon Commander's Battle course at Warminster prior to taking up my role within the Battalion.
4	How would you describe the position that you are currently in?	It is a middle management role, where I am responsible for the direction of the Company and the **pastoral care** of those under my command. I have to **manage the resources**, training requirements, taskings and **personnel development**, while also **mentoring and developing** my junior officers, who are my direct reports.
5	How many operational tours have you experienced?	I have been on a number of tours of Northern Ireland, Balkans and Kosovo. More recently I have been involved with operational tours to Iraq and Afghanistan in a counter insurgency role.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have not yet attended ACSC or obtained a Masters Degree, though I know that you have the opportunity to do a Defence Masters degree on the course. I was also given the opportunity to do the Defence Modular Masters programme with King's but the time was not available. I have a degree and all the normal officer development courses. I have not completed LEOC as it is not applicable to me.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	I think the key roles are setting and **demonstrating the organisation's values and standards**, the **development** of your direct reports and **effective leadership**, through **timely decision making** and **problem solving**. At my level, an awareness of the **Operational picture** and my actions within it is also key.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	I think there is a need for the senior leadership to identify the **complexities of the current operating environmen**t and the need to **invest time** and **resourc**e into the **development of the junior officers**. The situation is for more complex than that of 10 years ago, yet there is **less time** for individuals to develop due to compressed career reporting lines. There also needs to be a lot more **investment into collaborative working** with **non military** organisations, especially during exercises and preparation for deployment events.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Based on my experience they would be: **Building high performance teams**, **building and maintaining trust**; **effective decision making**; **evidence based analysis; developing others; influencing others; effective communication**; and the promotion of **lateral thinking** when faced with complex problems.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	I think the skill set is slightly different than leading, though there is cross over; Managing others / teams; setting goals; stakeholder engagement; setting reporting timelines; auditing processes against plans; developing / improving processes and effective communication.
11	In your opinion, how do you see yourself within the military?	I see myself as a department leader, setting direction for my junior officers to manage their platoons and deliver the required results to enable us all to meet success.

12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Building trust, developing others, clear effective decision making based on evidence based analysis.
13	Have you had any formal training / education on the Comprehensive Approach?	Very little - we have had a lecture on the concept during ICSC but no formal approach to training or considerations into the exercises we run / take part in.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Not exactly. We have had token military personnel role play individuals, but with various levels of realism and effectiveness.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, from the PSNI in Northern Ireland to UK and international agencies during operations in the Balkans and Middle East.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No, not at all. Most of our lessons are based on historic data from Malaya or examples from Northern Ireland. The periods within the Balkans and the Middle East were major learning curves for me.

B3 - Interview Profile 2

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	Company Commander with B Company - 3 Yorks. I operate at the tactical level, providing guidance, support, leadership and direction for the staff that work for me.
2	How long have you been with the organisation?	14 years within the Regiment, apart from an SO3 role within a brigade headquarters.
3	Have you had any other employment roles outside of the military?	None, joined military straight from Uni
4	How would you describe the position that you are currently in?	Department leader / manager. I am accountable for 120 personnel and the vehicle fleet within the Company.
5	How many operational tours have you experienced?	2 tours of Iraq, 1 tour of Afghanistan and 1 tour of Northern Ireland
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have completed all junior officer courses required for an Infantry Officer. I am also a post ICSC major. I have a 2:1 Hons degree and am currently enrolled on the MoD Masters programme through Portsmouth University.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	For a sub unit commander, the following elements are key to doing the role effectively: Demonstrating the values and standards of the unit, Clear communication, giving clear direction, effective decision making, problem solving, building and maintaining trust, self confidence and belief and managing the limited resource you have to deliver the plan.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	Offer better range of courses at all levels - Invest in the potential of officers, rather than choose their career stream and potential based on their performance at RMAS / Young Officer training. There needs to be greater educational focus for junior officers to build conceptual capability for today's complex environment.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	For a sub unit commander, the following I think are key leadership elements, they are similar to those I listed previously: Demonstrating the values and standards of the unit Clear communication, giving clear direction, effective decision making, problem solving, building and maintaining trust, self confidence and belief, empowering junior staff through development and mentoring, influencing others, both junior and senior members.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Clear communication, stakeholder expectation management, risk management, managing budgets, setting and achieving personal and team goals, effective planning, strategic awareness of the wider plan, resource planning and management.
11	In your opinion, how do you see yourself within the military?	I would say that I am in a middle management role, though I am expected to lead more tha manage. Managing is for people who look after resources and follow plans; as a sub-unit commander I am required to do the planning, lead the teams and give clear direction. I am also, through Mission Command, required to set the right image and ensure the values of the British Army are upheld.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Leading by example - Values based leadership; Clear decision making and problem solving; clear communication.
13	Have you had any formal training / education on the Comprehensive Approach?	No - ICSC touched on Counter Insurgency but it felt like an after thought. Poor awareness on the course of the various implications of Comprehensive Approach operations while managing coalition and joint issues and legal constraints.

14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	No - There is a tendency by the military not to resource these with key individuals; instead they use military support staff in role playing parts. At CAST(S) and CATT they do use Afghan role players to simulate host nation personnel, but with very limited military experience.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, on a number of occasions.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	Not at all - there is still too much focus on general warfighting against a Russian style 3rd shock army rolling over the countryside. BATUS needs to be more complex, rather than complicated, focussed to help us understand the limitations and issues of operating on Comprehensive approach Ops.

B4 - Interview Profile 3

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	Company Commander with C Company - 3 Yorks. I provide leadership at the tactical level, putting into practice the CO's intent.
2	How long have you been with the organisation?	14 years - Also an SO3 tour within Bde HQ and an SO2 tour at a training regiment.
3	Have you had any other employment roles outside of the military?	A few minor admin and labour jobs prior to joining the military, but nothing significant.
4	How would you describe the position that you are currently in?	As a sub-unit commander I am a department leader, responsible for leading the department, setting the vision and working in tandem with the senior leadership of the unit.
5	How many operational tours have you experienced?	4 tours in total with the Regiment - 2 x Iraq, NI and Afghanistan. Also a short tour within the Balkans with the Bde HQ I was an SO3 with.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have attended all the relevant courses that are required for promotion to Major. I have also completed ICSC(L). I have an in-service BA degree and currently looking at using my ELC for a Masters' programme.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Decision manking based on clear, evidenced based facts, problem solving, clear communication, building and managing high performing teams, mentoring others and setting goals and direction.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	There needs to be a better structured approach to enabling officers to attend conceptual developing programmes earlier in their career. We need a conceptually based officer corps to meet the needs of the future conflict. A 3 year distance learning course requires stability and planning, which many junior officers do not currently receive.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	For the role of a Major within the Army I would say that the ability to build trust, both above and below you, is key. To enable this the skills of negotiation, communication and evidence based analysis are vital. Being able to build the rapport with others to get them to do unpleasant activities while serving under you is a sign of good leadership, fostered on trust and understanding.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	I think this is difficult to identify, as what we do as leaders within our role also encompasses a number of managerial tasks. Key elements that are present at Major rank are resource and people management, data management, stakeholder engagement and evidence based analysis. I think this is more about getting things done in occordance with a specific direction already given; as a sub unit commander I am more used to mission command, knowing the intent but creating the methods of delivery myself.
11	In your opinion, how do you see yourself within the military?	I see myself as a leader of personnel, rather than a manager. I would say that Captains and junior officers are the managers within the Army; the Majors and above ranks are the leaders, especially in the current situation where sub-units and Battle-Group HQ's are deployed into areas and responsible for that area of operations.

12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Based on what I have already highlighted, building and maintaining trust, evidence based decision making, and situational awareness to understand the bigger picture and the commander's intent. These three elements provide resilience through flexibility and adaptability to the situation.
13	Have you had any formal training / education on the Comprehensive Approach?	I have received a couple of lectures on it at ICSC(L). Unfortunately it is a poorly understood and practiced within the Army. There is little understanding of structures and operating methods of NGOs and OGDs. We rarely have any interaction on exercises and regularly our engagement officer is a Reservist who is unable to attend the training events. This is an area we need to understand as it is fundamental to the influence campaign planning cycle.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	No, they have been unable to attend our events.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, on a number of occasions in Northern Ireland, Bosnia and Kosovo. There was also options within Iraq, but due to the complex security threat the relevant NGOs did not deploy into my AO.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No - the training received within ICSC(L) was very limited and poorly executed by the military DS; there was more focus on delivering against "the Pink" than actualy exploring complex problems. Within the training events there has been scope to explore the FCoC and 5 Cs, though this depends on the ingenuity of the exercise writing staff. We are still lagging behind the enemy when it comes to the strategic influence campaign. There needs to be a change in culture delivered to the UK military; the leaders of today should be integrated into delivering it.

B5 - Interview Profile 4

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	Company Commander with D Company - 3 Yorks
2	How long have you been with the organisation?	I have been with the unit for 11 years, with a 2 year break at Captain level as I worked in an SO3 post within a Bde HQ.
3	Have you had any other employment roles outside of the military?	I was a IT specialist prior to joining the military; it was one of the reasons I joined, looking to utilise my skills in an organisation at the front of development and technology application.
4	How would you describe the position that you are currently in?	I am a Company commander; I lead the Coy/Sqn Gp on operations, with my personnel managed by my Capts and subalterns. I set the direction of travel for the task and they execute it through the management of the resources I assign them.
5	How many operational tours have you experienced?	I have experienced 2 tours of Bosnia, 1 of Kosovo, 1 of Iraq and this is my second Afghanistan. The Kosovo tour was as part of the Bde HQ staff.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I haven't completed the LE course or the ACSC, though all others I have done. Regards the education elements, I do possess 2 Masters level qualifications. 1 as part of the MMP programme and the other was self funded, though supported through the ELC framework. It was in Information Security systems.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Building situational awareness within the team and fostering a close knit community, built on trust, information sharing, enabling mission command and faith in each other. We knew we were going to Afghanistan 9 months before we deployed, so we could focus on the training. Though we knew early on we were going, our actual role was not confirmed to much later on. This lack of knowledge was troublesome and could affect the resilience of the junior members of the Company. By building a supportive organisation, we could limit this impact on the resilience of the individual and team.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	I think there is greater need to build the capability of the young officer to manage resources, equipment and their people. It is great to build a "Serve to lead" culture, but most of their role, about 70%, is managing equipment and people within barracks. Sandhurst and YO training fails to prepare them for this. There is also a greater need to build an awareness of the three, four or five block war model, depending on who you read. In essence, our COIN and Culture / Influence war fighting skills are limited within the junior officer cadre and poorly developed at mid level. We really need to build a greater training capability towards building a multi-organisation approach to Operations.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Remaining calm under pressure, evidence based analysis, clear thinking and decision making, communication skills and situational awareness are the real big ones. Building trust, loyalty both up and down the chain of command, courage both moral and physical, and being able to **think outside the box.**
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Seeing the big picture is key to how you manage your resources. Evidence based decision making, problem solving and effective communication are key to managing the resources at hand. I would caveat this with the fact that as an OC, I switch regularly between manager and leader, given the situation.

11	In your opinion, how do you see yourself within the military?	I would see myself as a hybrid of the two. At times I need to set the policy and act to build the culture of the team. On operations I am the accountable individual if I lose people on operations. Within barracks I am more of a department manager, with my junior officers my line managers. I would stress that as an OC, I really do have a foot in each camp.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Remaining calm under pressure, clear, evidence based decision making and building situational awareness. This is due to being able to share knowledge, build trust and promote the atmosphere of being in full command of the situation, even if it is all going wrong.
13	Have you had any formal training / education on the Comprehensive Approach?	Not formally, though elements of it have been referred to within the Company and Battle group table top exercises. It is a simple idea in context, though the implementation is far harder due to the different organisations and cultures involved.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Not for this deployment. I have worked with other NGOs / OGDs when I have taken part in previous deployments, though again this happened quite late within the training cycle.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, during my deployment to Kosovo where I worked with aid agencies and US organisations conducting investigations within the region. Near the end of the tour we were also providing support to the mentoring of the local security forces.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No, though the preparation now is getting better. We focus too much on war fighting and combat operations, and too little on the influence building activities. There is little co-ordination, rather it is localised best help to make a quick impact, rather than sustained growth. It is poorly co-ordinated and incomprehensible.

B6 - Interview Profile 5

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	Regimental Intelligence Officer - 3 Yorks
2	How long have you been with the organisation?	I have been with the military for 7 years - the majority spent within the Battalion, apart from residential learning / training events required for promotion
3	Have you had any other employment roles outside of the military?	None - finished school and went to university to study. On completing my degree with a 2:1 I applied to join the army. I attended AOSB and was selected to begin officer training.
4	How would you describe the position that you are currently in?	I am the intelligence officer; I am responsible for the collection, analysis and the distribution of intelligence assessment to the CO. I have a team of 5 individuals who work for me within the intelligence section. There are also addition personnel from other organisations who are attached to us for operations and force capability.
5	How many operational tours have you experienced?	I have served in Iraq on two tours and a tour of Afghanistan already. I have also done a short tour of the Balkans region.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As a Captain I am yet to complete the ICSC and MA modules. I have completed the required junior officers courses, such as CWC, JOTAC, MK1, special to arm training and RMAS. I have also completed the Regimental Intelligence Officer's course. I have a BA(Hons) degree obtained prior to joining the military and I am looking at using my ELC credits to obtain a Masters degree while serving.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	I think that as an junior officer you need to build trust, carry out evidence based analysis of facts, make decisions based on the facts and communicate them to a number of different stakeholders. The assessments must be based on truth, not assumption; in intelligence it is critical to be honest and admit if you don't have a clear picture. Managing your team, giving clear direction and being unafraid to make decisions in the heat of battle is also key. As an individual demonstrating and living the values and standards of the army is vital, especially trusting others to employ mission command during critical moments.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	Greater emphasis on collective learning and sharing of experiences; we are looking at more and more e-learning, but that doesn't work for a practical based profession such as this. A more blended approach, bringing e-learning and practical learning, similar to how universities approach blended learning, would be a far better approach. Shared / joint courses with government departments, or Cabinet Office / Home Office led sessions to build greater awareness of Comprehensive Approach activities.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Building trust, clear decision making, evidence based analysis, sense of humour, patience, attention to detail, effective communication and self confidence
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Resource management, managing people effectively - key to building high performing teams under pressure, clear communications for briefing senior officers, aligning tasks to goals, and stakeholder engagement to manage expectations.

11	In your opinion, how do you see yourself within the military?	Organisation intelligence manager, delivering key information and assessment to enable the organisation to make timely critical decisions in order to align resources to tasks to obtain maximum strategic impact.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Effective decision making based on clear, factual analysis on factors, ability to communicate clearly and building trust within teams.
13	Have you had any formal training / education on the Comprehensive Approach?	Very little in formal training, except through my intelligence officer training. This was still focussed on large scale warfare with an OpFor based on a Russian / Insurgent hybrid approach. Training / education would be far more effective if a real understanding of the multiple drivers of conflict was incorporated into these training / education events.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	No. The only attempt was the use of military personnel to role play government officials; unfortunately this was not very effective as they were not fully aware of the in depth issues. The intelligence course had more detail on civilian organisations, with interactions with government security agencies.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, multinational organisations within a number of areas. We are not prepared for the high level of negotiations and interactions required with NGOs / OGDs.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	Training and education is very poor at junior level - it did not prepare me to do the role of a Pl Comd in managing resources and manpower in a complex environment. There is very little training in how to operate and work with OGD / NGOs

B7 - Interview Profile 6

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am one of the Platoon commanders for the 1 Royal Welsh element of Herrick 15 . As a Captain I am seen as one of the more senior Pl Comds; that is why I am is Support Coy. My role within the Battalion is OC Recce Pl. For the deployment I believe I am down to be part of the Police Mentoring and Advisory Group (PMAG), which is aimed at building the capability of the Afghan Police Force within Helmand Province.
2	How long have you been with the organisation?	I have been with the Battalion for 6 years now.
3	Have you had any other employment roles outside of the military?	None, joined the military straight from University. I spent a year at RMAS, then went through the Platoon Commander's Battle Course to learn my trade for leading my Platoon of 30 soldiers.
4	How would you describe the position that you are currently in?	Similar to the initial question. I am the Recce Pl Comd, responsible for providing teams to locate and observe the enemy, either for ourselves or other units. For me personally I have completed my Captain's Course and am about to start my next step of career development through Military Analysis courses and MK2 - an onlne military learning course aimed at helping me understand the bigger picture in preparation to go to ICSC(L).
5	How many operational tours have you experienced?	I have experienced two operational tours, one of Iraq and one in Afghanistan in the past 6 years
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have completed RMAS, JOTAC, Pl Comd's Battle Course, JOLP and MK1. I am currently beginning MK2 and my MA courses, as well as looking to attend the Captain's Warfare Course. I also have a BA(Hons) in Business and Management; I find it fascinating the things that both the military and business could learn from each other.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Within my position I believe that the important element of my role is the abiltiy to make rational decisions and give advice, based on facts and analysis. It is also to foster teamwork within my staff, be able to adapt and innovate within difficult situations, display courage and have the confidence to back myself and my decisions.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	It needs to build a greater awareness of the climate that we are operating in, rather than training for the last climate and conflict. Also, as a young officer, we need to be prepared better to manage people and resources. RMAS and PCBC teach how to lead, the army does not effectively teach us how to manage. There is a distinct difference yet it seems RMAS is yet to realise that.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Self confidence is vital for a young Pl comd; belief in yourself and your training. Self awareness is also very important. A third trait is the ability to create decisions and solve problems based on evidence based analysis. These all build trust within the team.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Ability to delegate effectively, supported by effective communication skills. Also the capability to build situational awareness by sharing information. These traits are vital to the effective management of teams and vehicles, both on the ground and in barracks.

11	In your opinion, how do you see yourself within the military?	I would like to say I am a leader, but I think honestly most of my team is as a manager of a large team. I follow what the OC develops, implement his intent and look after the team and the capability they can bring. If we look at the Company as a department, the OC is the department leader, we are his middle management team. The SNCOs are the frontline management group.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Building trust, effective decision making and displaying moral and physical courage.
13	Have you had any formal training / education on the Comprehensive Approach?	Very little, really just a review of JDN 04/05 and a discussion about it on JOTAC course. RMAS does not really cover it in detail; it focuses more at the tactical level rather than political and strategic.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	None.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	None - on the operational tours there were NGO and OGD elements around but they were at a higher level than us.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	We were well prepared for the combat roles and the fighting elements. When it came to influence operations, hearts and minds and proper, deep thought COIN activity, our preparation was woeful. We need to deliver change; understand how to change people's mindsets and culture. The training I have received for this deployment has been a lot better, but I still think we need to build greater awareness of COIN within the junior officer ranks.

B8 - Interview Profile 7

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am a Company Commander within the 1 Rwelsh Battle-Group. I have under my command a grouping of approx 120 individuals. This includes my Pl Comds, Pl SNCOs, infantrymen and support staff. Also attached are elements of the Royal Artillery, the Royal engineers, AGC and REME units.
2	How long have you been with the organisation?	I have been with the Battalion for 12 years, having joined as a Platoon Commander from RMAS. I have spent a total of three years away from the Battalion during that period, operating within Bde HQ or on attendance on ICSC(L) or other leadership courses
3	Have you had any other employment roles outside of the military?	None
4	How would you describe the position that you are currently in?	I am the Commander of the Force package, pulled from a number of units to deliver the best effect on the ground as possible. I am responsible for implementing the Commanding Officer's intent through leadership, guidance and direction to the soldiers under my command. I am also responsible for the liaison with other organisations within my area of responsibility.
5	How many operational tours have you experienced?	I have done two tours of Northern Ireland, one tour to the Balkans, a tour in Kosovo as part of the Bde HQ and a tour in Iraq
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have attended all the required training for Platoon Commander, Recce Pl Comd and as an Armd Infantry Pl Comd. I have also completed MK1 and 2, my MA modules and ICSC(L). I am also two thirds through my MSc in Leadership course.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Giving clear direction through leadership and information; building and sharing situational awareness to all parties; making sure my teams are fully prepared for the tasks ahead by setting the company aims and objectives for the period; and developing a culture based on trust and openness to see us through the hard slog.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	There is a greater need to understand how to conduct an "influence campaign" over a number of years. Our recent history in Afghan is a prime example - we have had a number of smash and grab operations lasting six months aimed to disrupt the enemy, but few campaigns are linked or mutually supporting the next brigade. There seems to be a real lack of strategic vision to reach our end state. To build the capability of our officers we need to know what we are being sent to do, the end state and how to fight it. Currently our preparation for a political problem that requires influence and infrastructure building activities is still built on tactical seek, destroy and hold operations, with a bit of SSR thrown in.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Building trust, decisions based on evidence and intelligence, problem solving, building situational awareness and innovatitive thinking and moral courage to make the tough calls. All these could be summed up in values based leadership, which is trained into us at RMAS and ingrained during our time within service.

10	In your opinion, what competencies would you say are critical to being a manager in the military?	Seeing the strategic / operational picture is key to managing your resources. Effective communication and delegation of tasks are key to managing the resources at hand. I would caveat this with the fact that as an OC, I switch between manager and leader, given the situation.
11	In your opinion, how do you see yourself within the military?	I would see me being either a leader, or a manager, depending on the situation at the time. Within operations I am without question a leader.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Building trust is key, through being calm under pressure and making key decisions based on evidence based analysis. Loyalty, courage both moral and physical, and building situational awareness are also key.
13	Have you had any formal training / education on the Comprehensive Approach?	Very little - it is a gap within the training and preparation for operations and wider staff development. During my time at ACSC in 2008 it was a very misunderstood concept within the Directing Staff cohort - they were more focussed on Combined and Joint large scale operations, rather than actually building a greater capability when it came to understanding how to plan, execute and review an effective COIN campaign.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Very little - it is a gap within the training and preparation for operations. When we deployed to Northern Ieland, our preparation training involved study days with the PSNI and ex UDR / RIR personnel. There is very little of this with deployments to Afghanistan. It needs to get better; too much is adhoc preparation at the moment.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, in Northern Ireland and the Balkans, where the ways of working were well established. In Iraq there was a distinct lack of co-ordination and it was a more adhoc localised approach.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No - we need to build a greater capability within the lower ranks to deliver the Comprehensive Approach. We need to change our approach and start to inform them how their decisions can impact the bigger picture. There also needs to be a greater understanding of the various tenets of society, rather than just the basic security activities that we are employed on.

B9 - Interview Profile 8

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am a Sqn Leader within the KRH Battle-Group. I have under my command a grouping of approx 120 individuals who operate within light / medium armoured vehicles. In general warfare we would provide support to the Heavy Sqns equipped with challenger MBTs. This includes my Tp Comds, their vehicle crews and support staff. Also attached are elements of the Royal Artillery, the Royal Engineers (Armd), AGC and REME units.
2	How long have you been with the organisation?	I have been with the Regiment for 16 years, having joined as a Troop Commander from RMAS. I have spent a total of four years away from the Regiment during that period, operating within Bde HQ or on attendance on ICSC(L), ACSC and other leadership courses
3	Have you had any other employment roles outside of the military?	None -I have been with the military since university
4	How would you describe the position that you are currently in?	I am the Commander of the Coy/Sqn Gp, which is made up from a number of units to deliver the best effect on the ground as possible. As the Commander, I am responsible for implementing the BG CO's intent through my actions on the ground. This requires leadership, guidance and direction to the soldiers under my command. Liaison with other organisations within my area of responsibility also falls to me to build situational awareness and understanding of the actual situation on the ground.
5	How many operational tours have you experienced?	I have done 3 tours to the Balkans, including Kosovo as part of IFOR, a tour in Iraq and this is my second tour of Afghanistan
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have attended all the required training for an Armoured Tp Commander. I have also completed MK1 and 2, my MA modules and ICSC(L). I am one of the few majors to have already compelted ACSC and I am a third tour Major. I have an MA as part of the MoD MMP programme, and MA from ACSC and I am also two thirds through my MSc in Leadership course. Ideally I would like to complete a MPhil or PhD while serving, similar to the US approach.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Giving clear leadership through accurate and timely decision making, based on facts and validated information; maintaining situational awareness to all parties; making sure my teams are fully prepared for the tasks ahead by setting the mission command directives; and developing trust and openness to see us through the difficult times.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	There is a greater need to understand how to conduct an "influence campaign" over a number of years. Our recent history in Afghan is a prime example - we have had a number of smash and grab operations lasting six months aimed to disrupt the enemy, but few campaigns are linked or mutually supporting the next brigade. There seems to be a real lack of strategic vision to reach our end state. To build the capability of our officers we need to know what we are being sent to do, the end state and how to fight it. Currently our preparation for a political problem that requires influence and infrastructure building activities is still built on tactical seek, destroy and hold operations, with a bit of SSR thrown in.

9	In your opinion, what competencies would you say are critical to being a leader in the military?	As Sqn Ldr Recce, building trust with the senior command staff is key. They expect decisions based on evidence and intelligence, problem solving, building situational awareness and innovatitive thinking and moral courage to make the tough calls. All these could be summed up in values based leadership, which is trained into us at RMAS and ingrained during our time within service.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Seeing the larger picture on the battlefield is key to managing your resources. In camp being able to manage your resources to ensure you are ready to deploy and forward base any repairs is also critical. Effective communication and early assignment of resources to tasks is critical to long term effectiveness.
11	In your opinion, how do you see yourself within the military?	I am a leader, responsible for finding intelligence, making key decisions on behalf of the organisation and advising the senior staff. I also give direction my Tp Comds, who fight and manage their vehicles on the battlefield.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	In my role, making assessments and decisions in key; therefore it needs to be evidence based. Problem solving and decision making is important to enable us to move quickly and maintain the edge. Courage both moral and physical is also vital, especially when the difficult decisions need to be made in the heat of battle.
13	Have you had any formal training / education on the Comprehensive Approach?	Very little - it is a gap within the training and preparation for operations and wider staff development. During my time at ACSC in 2008 it was a very misunderstood concept within the Directing Staff cohort - they were more focussed on Combined and Joint large scale operations, rather than actually building a greater capability when it came to understanding how to plan, execute and review an effective COIN campaign.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Very little - it is a gap within the training and preparation for operations. When we deployed to the Balkans, our preparation training involved study days with previously deployed personnel, the review of operational reports and mission logs. There is very little of this with deployments to Afghanistan. It needs to get better; too much is localised or adhoc preparation. While events such as CAST and CATT are very beneficial, we waste too much time with HFT and then MST. We should just focus on building capability, and get very good at it.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, in the Balkans, where the ways of working were well established. In Iraq and my previous tour in Afghanistan the approach has been adhoc, poorly directed and without a long term strategy. There is a lot of doing but without guidance which results in a lot of wasted time, effort, money and local engagement.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No - we need to build a greater capability within the lower ranks to deliver the Comprehensive Approach. With the arrival of the strategic corporal impact, we need to inform them how their decisions can impact the bigger picture. There also needs to be a greater understanding of the various tenets of society, rather than just SSR and security activities.

B10 - Interview Profile 9

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am a senior Captain placed in the role of the Stabilisation Officer. I am an augmentee to the Battle-Group and have been brought in due to my skills and knowledge of working with different agencies in the combat zone.
2	How long have you been with the organisation?	With this Battle-Group only a couple of months; I have however been part of the military for 15 years. I was a soldier and then commissioned from Sergeant into the Officer ranks.
3	Have you had any other employment roles outside of the military?	None
4	How would you describe the position that you are currently in?	Similar to as I said in the previous question, I am the senior advisor within the Battle-Group for engaging with the various NGO agencies on the ground. I am involved in most of the decision making on how we manage impact projects to build support and consent within the population. Unlike my US equivalents, we are heavily constrained by limited funds in theatre and in training. At best I get to work with Afghan nationals who work in the UK which are paid to come and support the training serials to add some realism.
5	How many operational tours have you experienced?	2 tours of Iraq and 1 tour of Afghanistan. I have also completed a tour of Northern Ireland and the Falkland Islands.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As a SNCO commissioned into the Officer Corps, I have completed RMAS LEOC rather than the full 1 year course. I also have the PSBC, the SNCO version of the Pl Commander's course. I have completed JOTAC and JOLP, to help me understand the different elements of being an officer. I have also completed MK1 and 1 of my MA modules. The next step is to attend the Captains' Warfare Course and then promotion to Major before heading off to ICSC(L).
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Having seen both sides of the coin, key elements are; Building trust within the team; seeing the bigger picture and translating it for the team; situational awareness; displaying moral courage; decision making based on fact; and having a sense of humour when it all goes wrong.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	We really need to take the influence building elements of COIN seriously and resource them during training. We should have a career stream for CIMIC personnel and promote the importance of cultural awareness and influence campaign planning. Smash and grab activities are short term answers; building resilience within communities is what will win us a COIN campaign.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Simialr to what I said previously. Leadership is demonstrated through trust, effective decision making based on evidence and fact, effective communication and building situational awareness. Being decisive and showing moral courage is also key to good leadership.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Resource management, effective communications, understanding what the boss wants, planning skills, honesty and reliability. You also need a cool head when under pressure.

11	In your opinion, how do you see yourself within the military?	I see myself as both a manager and a leader, with different skills being needed at different times. The ability to manage the resources, finances and staff welfare in barracks day to day is a managerial role. The leading of teams during high intensity situations, with split second decisions and making life or death choices, based on limited information is a leader's role. I do both.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Courage (moral and physical) of your convictions, evidence based decision making and situational awareness. These three are key to success when stuck in tight or difficult situations.
13	Have you had any formal training / education on the Comprehensive Approach?	No formal training, only what Ihad discovered myself in relation to the military docuemnts. I think the Army is still very poor at understanding the concept itself. In the Afghanistan context, there seems to be too much institutional focus on combat in relation to development. We must focus on the development of the AUP in particular if we are to achieve transition effectively and on time.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	None - this is a fundamental flaw within the current level of preparation for military units prior to deployment. It is harder for individuals like me who are augmented in because of our skills. As individuals, we can get lost in the system and miss a number of training events.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, on my previous tours I was working with local law enforcement agents, international aid agencies and a UN police support initiative. Unfortunately it was more of a "learn on the job" rather than being properly prepared for the taask prior to arrival.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No, I don't think I was, and currently don't think we are getting it right yet. I think that the Army is too reactive in nature and, whilst we are focussed (rightly so) on Afghanistan currently, we must not ignore what happens post 2015. We have a generation of soldiers who know nothing other than Afghanistan and we must ensure that we are able to rebalance ourselves and develop warfighting skills again; not just our combat skills. We must fundamentally deliver changes to how we prepare and deliver combat operations.

B11 - Interview Profile 10

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am the senior advisor to the Commanding Officer on the allocation of Joint Fires and Influence activities for the Battle-Group. I have a team of 120 mixed personnel working under my command for the operational deployment.
2	How long have you been with the organisation?	I have been in the military for 15 years and this is my 2nd tour as a major. As a unit the battery has been assigned to the Battle-Group since the beginning of HFT, which has enabled a good level of integraation and trust to develop. On the flip side, due to the level of support required for multiple training and development exercises, plus my own Regiment's training requirements, it does result in a lot of nights out of bed. This is particularly evident within the Fire Support Teams who will always support their relevant sub-units.
3	Have you had any other employment roles outside of the military?	None, I have been with the military since university.
4	How would you describe the position that you are currently in?	I am the Battery Commander for the Battle-Group. I am responsible for providing fire support guidance and control to the commanding Officer as well as how to effectively integrate aircraft, unmanned air vehicles and helicopters. I also provide forward teams to support local units with Joint Fires advice and guidance. I also have under my command the influence team
5	How many operational tours have you experienced?	I have experienced tours in the Balkans, Kosovo, 2 tours of Iraq and a short tour (3 months) of Afghanistan.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As a BC I have completed the folowing courses: RMAS, JOTES, MK2, MA Modules, ICSC(L). I have also completed Special to Arms courses, such as RA Young Officer's Course, Fire Support Team Commander Course, RA Captain's Course, Staff Officer's Battle Space Management Course, BC Close Support Course and the BC Targeting Course.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	The management of the team is important, especially with the amount of demands on the limited resources available. Building the bigger picture and maintaining situational awareness is crucial for me, as I cannot give support without understanding the second and third order impact. Strong, effective communications are also critical to enable me to rapidly transmit my direction, through voice and data channels. The other critical element is fostering an environment which supports mission command, which is built on trust, integrity, belief in others and a desire to succeed; this force multiplies the capabiltiy of the teams and maintains operational tempo.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	There needs to be a greater emphasis on understanding the dynamic environment that we are currently operating within. The establishment needs to resource the training to be more realistic with regards to the political and cultural framework that exists and the complex situation troops find themselves within.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Building trust within the team, situational awareness, moral courage, effective communications, evidence based decision making, effective problem solving and building the capability of others.

10	In your opinion, what competencies would you say are critical to being a manager in the military?	Resource management, effective communications, understanding the commander's intent, effective planning and problem solving.
11	In your opinion, how do you see yourself within the military?	I see myself primarily as a leader, directing my teams across the battlefield and making critical decisions on how to effectively use my limited resources to achieve maximum effect. My decisions can have serious impact to the plan and to the safety of the frontline teams and at times I need to make the difficult decision to remove resources from people who need them in order to react to the bigger picture.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Building and maintaining situational awareness through evidence and intelligence analysis, moral and physical courage; and evidence based decision making,
13	Have you had any formal training / education on the Comprehensive Approach?	No official training, though as part of the Artillery training one element that is studied is the imapct of influence operations. Unfortunately these are glossed over as an "add on" raher than being built as critical to success for the long game.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Not within training exercises. We have used role players but this does not produce the same effect as there is no depth to the actual situation.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, during the deployment to Kosovo and during the second tour in Iraq.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No - the focus for us was the use of ground, air and unmanned assets to provide a hard effect through the deployment of joint fires. We were not taken through enough testing exercises with regards to the political / cultural situation. The approach to training and preparation needs to change - innovation and quick thinking needs to complement cultural and behavioural analysis. It is time to change our way of warfighting.

B12 - Interview Profile 11

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am one of the Fire Support Team Commanders working in support of the Battle-Group. I report to the BC and move around the Battle-Group in accordance to his plan.
2	How long have you been with the organisation?	I have been with the military for 8 years, joining from the Officer Training Corps which was run at my university. I have been with this Regiment for two years, having previously served with a Weapons Locating Unit.
3	Have you had any other employment roles outside of the military?	Apart from some temporary jobs during university to help support my fees, no.
4	How would you describe the position that you are currently in?	I provide the conduit between the joint fires capability within the Battle-Group and the sub unit I am supporting. I also provide planning advice and a communications channel for the sub unit commander as the Fires net is encrypted and often has greater situational awareness.
5	How many operational tours have you experienced?	I have completed a tour of Northern Ireland and 1 Iraq tour.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have completed the following courses to date: RMAS, RA YO course, JOTAC, JOLP, MK1, RA Captain's Course and RA Close Support (FST) Commanders' course.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	In my role, building situational awareness within the team is key. Other key traits for me is giving clear direction through leadership and information; and making sure my teams are fully prepared for the tasks. A key factor to being successful is understanding how to apply mission command; some of my civilian friends would call it adaptive or values based leadership. It is the ability for the BC to tell me what needs to be done, then letting me decide my own way of achieving it. This concept is very important to FST commanders, as we are a very finite resource but bring so much resource to support the Sub Unit commander. The Sub Unit commander also employs mission command towards myself, asking me to deliver an effect on time at a certain location; he does not care how I deliver it, just as long as it is on time, accurate and effective.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	Build our awareness of the complexity of the situation that we are operating within. There is also a need to build greater use of RA FST commanders within the decision making processes at the Company Squadron Group. We are used to operating at CT 3 - 4 levels long before sub units do.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	In my role, these would be; being able to employ mission command, trust, communication skills, integrity, courage, (especially moral), evidence based analysis, effective decision making, situational awareness and problem solving.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Managing your resources, having a technical knowledge of your equipment, being able to delegate, communication skills and following orders.

11	In your opinion, how do you see yourself within the military?	I think I am a hybrid of both. I have a team to manage and resources to control, but I have to make life or death decisions based on fire support assets and the bigger picture. I need to display moral courage to challenge the sub unit commander's I am supporting and be able to direct my team. On operations I am at the front edge and my decisions could affect a large number of individuals.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Effectively applying mission command; situational awareness based on intelligence analysis; and effective decision making.
13	Have you had any formal training / education on the Comprehensive Approach?	None
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	None - the training as focussed more on kinetic operations in order to build capability within the infantry call signs.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	None - normally happens at BC level.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	From my experience, we are still too reliant on the physical effect of the use of Joint Fires in support of manoeuvre operations. Ideally we would have a greater awareness of soft effects and non kinetic actions to build consent. We also need to be willing to share information more to enable faster organisational reaction.

B13 - Interview Profile 12

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am the officer responsible for manning the Battery Command Post, which acts as a communicaiton hub for the Joint Fires Cell within Battle-Group HQ. I remain with the HQ whem the BC and the FST teams deploy forward during the close battle.
2	How long have you been with the organisation?	I am a Battery Captain within the unit and have been with the Regiment for 6 years. Previously I was a SNCO, who commissioned as a Late Entry Officer.
3	Have you had any other employment roles outside of the military?	None, I joined the Royal Artillery as a junior soldier and have remained with it ever since for the last 19 years.
4	How would you describe the position that you are currently in?	As I said earlier, I am the BK. It is my role on operations to manage the team responsible for the communication networks, Joint Fires resources and provide a direct link to the CO and Bde HQ for the Joint Fires Cell. I am also responsible for the manning of the Logistic support element for the Bty, with my SNCO who acts as my frontline manager. In essence I am the 2IC of the Bty, responsible for the management of communications and logistics to support the BC and FST teams.
5	How many operational tours have you experienced?	Since joining I have served 3 tours in Northern Ireland, 2 in the Balkans, 1 in Cyprus, 1 in Kosovo and 1 tour of Iraq. This is my first tour of Afghanistan.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have not completed the Junior Officer courses, I don't need to as I am an LE. I have completed the Late Entry Officer's Course (LEOC) and have attended 1 MA module. I have yet to attempt MK2, though I need this if I wish to move forward onto ICSC(L).
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Key components of my role are building and maintaining situational awareness to deliver Joint Fires capability to the battle-group. Another aspect is evidence based analysis to inform my decision making. Communication and computer skills are also important as we do a lot of information sharing and management.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	From the junior officers I have worked with, there is a real gap in resource management knowledge and how to manage people. Being taught to lead in battle is all well and good, but that is only 30% of the job. There is a greater requirement to build management skills, goal setting and identifying key objectives for team individuals. Better understanding of the intricacies of counter insurgency would also benefit them.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Effective decision making based on evidence; Communication skills; moral courage; Situational awareness, motivating others, selflessness, loyalty, building trust and a sense of humour.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Managing your people and resources, effective planning, communication skills, seeing the bigger picture, delegation and information reporting.

11	In your opinion, how do you see yourself within the military?	I am the BC's senior management element providing key managerial skills around the logistics, communication and people management areas. By also being the key element within HQ I also manage the data and communication link between the BC, CO and Chief Fires.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Thinking big - seeing the operational and strategic picture; promoting the right culture and values through demonstrating moral courage, buliding trust and motivating others; and effective decision making based on facts and evidence based analysis.
13	Have you had any formal training / education on the Comprehensive Approach?	None, though I have read through JDN 04/05 to try and understand what it is.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	There is very little integration of NGO and OGD during training. Within the Northen Ireland deployments the PSNI were firmly integrated from an early stage, enabling the build up of trust and understanding. This was not the same for the Balkans or Iraq. Even simulated with individuals with an understanding of the roles would have added some benefit.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	I have worked with a number of agencies within my operational tours. The RUC / PSNI were well drilled within Northern Ireland, while the NGOs and aid agencies within the Balkans and Kosovo were quite disorganised. Iraq was very poorly managed, with little framework for NGO / OGD operations, with the military being expected to pick up the slack for poor management.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	Not through training and development. I have an advantage from my operational experience and service in the ranks. We really need to get better at developing training that replicates the actual characteristics of conflict. There is poor replication of the pressure caused by the complexity of current operations, with training more focussed on war-fighting skills. We are failing our soldiers and young officers by not preparing them for today's conflict.

B14 - Interview Profile 13

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am the TACP Commander responsible for delivering clear air and aviation control to the Battle-Group at the front edge of the battle. I report into the BC and provide him with trained forward Air Controllers (FACs) to enable the integration of air and aviation assets into the close battle.
2	How long have you been with the organisation?	I have been in the army for 9 years, having served with the Infantry prior to being trained as a TACP Officer
3	Have you had any other employment roles outside of the military?	None
4	How would you describe the position that you are currently in?	I am the key air / aviation liaison element for the battle-group at the front end, reporting into the Bde Air Cell to manage the use of air and aviation assets. I am also trained in directing Joint Fires assets, as are elements of my team. This is important as it means that I can provide the BC with extra capability through joining members of my team with his FST elements. This means that is essence we can create and extra two FST teams that can direct aircraft and aviation assets.
5	How many operational tours have you experienced?	I have done 1 tour of Nortern Ireland, 2 tours of Iraq and this is my second tour of Afghanistan.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have completed the following courses: RMAS; PCBC; JOTAC; JOLP; TACP Officer's course; FST Commander's Course; Air Land Integration Course; Forward Air Controller's Course; MK 1 and 2; and 1 MA module.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Within my role the key elements I see are as follows; Ability to plan under pressure, situational awareness, effective communication skills over various media platforms, evidence based decision making and having the guts (Moral courage I guess) to make a tough call. All these elements come together to build trust within the team - they see that as the leader you are looking after them, getting the job done but unafraid to make the hard calls for the bigger picture.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	Building greater awareness of the capabilities available to them on the battlefield; better teaching and education around operations within the COIN environment; better decision making through using the Combat Estimate and how to utilise air / aviation to their advantage.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Decision making based on intelligence and truth, not information. Problem solving under pressure, communication skills, thinking outside the box, situational awareness, moral courage and building trust within the team.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Managing the resources you have at hand; effective planning and reporting.

11	In your opinion, how do you see yourself within the military?	I am a leader with management requirements. I am responsible for critical decisions and advice to the battle-group, though I am autonomous to the Battle Group as I am a Brigade Asset. I am also the manager of a small team, responsible for the welfare of all members.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Based on my role, the three are; dynamic problem solving, innovative thinking, evidence based decision making.
13	Have you had any formal training / education on the Comprehensive Approach?	Only a few lectures on the topic, no actual discussions on turning it into effective influence operations on the ground. The CAST(S) team have integrated training events with this in mind to test our planning and considerations.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	No - the TACP party would not normally get involved within this area, unless supporting search operations for local government assets.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	No, due to the roles that I have been involved in.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	Not through the training that we received - it was more focussed on combat actions rather than operating within complex human terrain. Greater complexity within training would be beneficial. The recent CAST exercise has gone some way to address this, but it is only one element of a long training cycle.

B15 - Interview Profile 14

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am the Battle-Group Logistics Officer (BGLO) for the deployment and the exercise. Within the organisation I am responsible for the CSS (Combat Service Support) or in layman's terms, logistic support, to the Commanding Officer.
2	How long have you been with the organisation?	I have been with the RLC for 13 years, having been in post as the OC within the squadron for 15 months. Prior to that I was an OC at a training regiment, responsible for the training and development for Phase 1 recruits.
3	Have you had any other employment roles outside of the military?	None outside of the military, unless you term part time roles during university. I was part of the OTC at uni, which helped me build greater awareness of the military and the opportunities within it.
4	How would you describe the position that you are currently in?	My current role as the BGLO would be best described as the senior logistics planning officer. I am responsible for writing and implementing the BG CSS plan, informing the Operations planning team the art of the possible with the current logistics chain. I also provide the CSS link back to the Bde team, ensuring the planning of 2nd line CSS support for upcoming operations. Although not affiliated to my Corps, I am also responsible for the planning of how the BG will use any Military Police elements during the campaign.
5	How many operational tours have you experienced?	This is my fourth operational tour. I have had one in Northern Ireland, 1 in Kosovo and 1 in Iraq.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As an OC I have conducted the normal progression courses required. These are: RMAS, YO's training, JOTES, MK2, MA modules, RLC Capt's Course and ICSC(L). I have not completed JOTAC or JOLP as they are successors to the JOTES course that I completed. Likewise, MK1 did not enter until I had promoted to Capt. Apart from the above, I have also completed a number of special to arm / trade training courses required for RLC supply officers.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	As the CSS Officer, key elements for my role is the ability to make effective plans based on evidence and facts, making the tough decisions about who gets what resources, and a thorough understanding of the current and potential risks to the supply chain.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	There needs to be a greater understanding about the importance of 2nd and 3rd order support to the frontline forces. Logisitics planning, though not pretty or as visible as that of the teeth arms, is just as vital, if not more, to delivering a successful campaign. An idea would be to force all young officer to conduct supply and resource planning training events to help them get a wider understanding of the various factors involved. This knowledge would also benefit them in the current COIN environment.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Based on my role; Seeing the bigger picture - situational awareness, effective planning and risk management, fact based decision making, delivering values based leadership and direction to the team, building trust, integrity and moral courage to tell the boss no.

10	In your opinion, what competencies would you say are critical to being a manager in the military?	Effective communications, managing the expectations of the various Battle-Group leadership team, resource management of my scarce vehicles and people and reviewing of the plan and updating it. There is also risk and issue management and understanding how it impacts on the CSS plan.
11	In your opinion, how do you see yourself within the military?	That is a hard one to call, as I see myself, and the BG CSS Officer role as a blend of leader / manager. I am required to set out the plan, direction to my teams who are spread over a wider area in support of BG elements. At the same time I need to maintain motivation within the team, pastoral care and provide a support framework for them. I am also the link back to the Bde CSS chain. Truthfully I am a bit off both, but more manager than leader on operations.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Situational awareness, ability to effectively plan based on evidence and manage risks; and give direction to teams to enable effective mission command.
13	Have you had any formal training / education on the Comprehensive Approach?	Not really -received a presentation on it at CAST (S), but apart from that no real introduction to it. Ideally it is something that ICSC(L) and the Captain's courses should cover, but they are more focussed on tactics and operational war-fighting, rather than building the awareness of the strategic picture.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	No
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, in Northern Ireland and the Balkans, but not in Iraq. They were visibly absent in Iraq, yet that was the place we needed a Comprehensive Approach the most.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No - we focussed more on the complicated issues around planning CSS support operations, or the need to conduct high intensity war fighting events. The complexity of the political, social and legal interfaces with the frontline actions are still poorly understood by the officer corps, yet it is these things that derail our plans.

B16 - Interview Profile 15

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am a Battle Group liasion officer - my role when we deploy is to conduct the media engagement, government engagement and the liaision between other units and ourselves.
2	How long have you been with the organisation?	I have been with my unit for 8 years, having joined it when I first commissioned, though I have spent time away on training courses and a tour at a training regiment. I have been part of the Battle-Group for 13 months.
3	Have you had any other employment roles outside of the military?	None
4	How would you describe the position that you are currently in?	I am the senior liaison officer for the battle-group, responsible for managing the engagement with the media and other units who will operate alongside us in theatre. As the LO, I will manage the team to develop the right message for the right audience.
5	How many operational tours have you experienced?	3 tours in total - 1 of Kosovo and 2 tours of Iraq. This is my first tour of Helmand.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As a Captain I have completed the following courses: RMAS, Tp Comd's Cse, Vehicle Comd Course, JOTAC, JOLP, MK1, MA module A. I have also completed the MoD Media management course as part of my role development.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	I think that having an awareness of the wider picture, especially as an engagement manager, is key. Good communication skills and evidence based analysis is also important in this role. Any comments not based on fact can be easily distorted and twisted by others.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	A greater awareness of the importance of a strong, well crafted and supported message for influence campaigns. We need to understand the importance of culture and non-combat / non-lethal engagement methods to win the population. HTA is a skill that is poorly understood but critical to success.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Effective communication, adaptive thinking, values based leadership, understanding the wider picture, moral courage and decision making under pressure.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Personnel management, time and resource management, communications, delegation and stakeholder engagement.
11	In your opinion, how do you see yourself within the military?	I am an information manager, ensuring the key messages get out of the Battle-Group via the relevant engagement groups. Though I manage a small team, I do not think I am in a leadership role; that is the OC who sets the strategy and allocates the resources to support me and my team.

12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Decision making under pressure, Effective communications and stakeholder engagement. The problem solving and other stuff can be done by the teams - my job is, based on their analysis, to make the decision on what way we go.
13	Have you had any formal training / education on the Comprehensive Approach?	No, though I have read the documentation on it and received an informal guidance lecture on it. As a process it does not seem to be well understood across the team; however our own planning actions seek to be done collaboratively which civil and military personnel, which is the essence of the Comprehensive Approach.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	No - this is an area where the military training events are very limited.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, mainly contractors who are stationed in theatre helping to manage our infrastructure. This has become more obvious as we cut back on our own skilled personnel within the military.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	The educational courses that I received within the military did not explore the complexity of modern combat is as much detail as I needed to know. The exercises tried to replicate the confusion and the many issues, but without proper investment into the use of civilian counterparts, they did not fully represent all the issues that I met. The complexity of the CAST events, with the political, regional, military and civilian elements all colliding at once into the scenario was the closest I have experienced to the real situations in theatre.

B17 - Interview Profile 16

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	My role is the Batle Group Engineer - I deliver the advice and direction on key engineering tasks, while also supporting the OC Engineers in delivering specialised advice and guidance on engineering issues.
2	How long have you been with the organisation?	I have been with the Battle-Group for 9 months; prior to that I was with another armoured engineer unit as a senior Troop Commander within an armoured engineer squadron.
3	Have you had any other employment roles outside of the military?	None - came from university where I studying engineering at BSc level into the RMAS to obtain a commission into the Royal Engineers.
4	How would you describe the position that you are currently in?	The role is focussed on the ability to deliver specialised information on all engineer focussed tasks. Whereas the OC looks after the management of information and taskings, my role is more as the engineering specialist, working on behalf of the OC to develop ground traces, environmental and physical impacts, contraints and issues. My role as the BGE also enables me to provide key information updates on the roles and capabilities of the delpoyed units, informing the planning sessions in support of the OC. I also delegate and watchkeep during the times we are deployed as a Headquarters.
5	How many operational tours have you experienced?	I have experienced four operational tours: 1 x NI, 1 x Iraq and 2 x Afghanistan. I am currently preparing for my third tour of Afghanistan, though this is the first time as HQ staff.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As a senior Troop Commander and BGE I have completed all the relevant career courses upto ICSC(L). I am yet to attend my MA Module B, though this is in the pipeline. I have conducted by special to arms engineer training and I am explosives trained. I completed a BSc at university and I currently exploring the options of a part time MSc, funded by the military.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	Within my position the important element of my role is the abiltiy to make rational decisions and give advice, based on facts and analysis. As a specialist, trust in my judgement and critical analysis, supported by evidence based decision making is key. Also being able to adapt to difficult situations and find innovatative answers to complex solutions is also key. The final element would be having the courage of my convictions to see a decision through.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	Building greater awareness of the capabilities available to them from specialists that are on the battlefield and how to use them. Better education around operations within the COIN environment and a focus on understanding the impact of Hybrid forces on the current combat mechanisms. Finally, a better approach to decision making through using the Combat Estimate and how to utilise key engineering assets to build influence.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Building trust within the team, doing the right thing rather than the easiest thing, effective communications, evidence based decision making, effective problem solving and building the capability of others, situational awareness and moral courage to have the belief in yourself and your decisions. Also humility to accept you need help and advice, or when you got a decision / analysis wrong.

10	In your opinion, what competencies would you say are critical to being a manager in the military?	Managing resources you have at hand to maximise capability, effective planning, ability to see the bigger picture, delegation, effective communication skills in all mediums, and information reporting.
11	In your opinion, how do you see yourself within the military?	Organisation engineering intelligence manager, delivering key information and assessment facilitating the organisation. This will enable it to make timely critical decisions in order to align resources to tasks, as well as allowing it to obtain maximum strategic impact. In regards to a leader or a manager, I would say I am a manager of information and process to enable the leaders to make effective decisions.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Based on my current role, these would be: Situational awareness - seeing the operational and strategic picture; Promoting the right culture of decision making under pressure through demonstrating moral courage; and effective decision making based on facts and evidence based analysis.
13	Have you had any formal training / education on the Comprehensive Approach?	Not officially, though we have had informal briefing sessions as part of our special to arm training on how engineers and civil contractors for the MoD can work together on operations in support of building influence tasks.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Not during my previous deployments.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Previously on the Iraq and Afghanistan tours I have worked with local and international contractors to develop base protection and influence building tasks.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	Operationally I think I was, though conceptually no. There was a number of influence and cultural areas that I felt very under developed and exposed in. The military needs to understand how important the moral component is to the population, as well as blue and red forces.

B18 - Interview Profile 17

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I arrived with the Bn as 1 of the Companies were preparing to enter into MST to support the Bde. I had been working in an SO1 position in Land Forces before that. The Bn is a core unit of the Queen's Division and was deploying elements in support of the Brigade on Op Herrick. As the CO I attended the training to provide the Command and Control for the BG HQ, enabling further training of the BGHQ staff.
2	How long have you been with the organisation?	I have been with the Regiment for four months, working to develop a tight knit planning group for the BGHQ. Though the Battalion is not due to deploy, we have a number of elements that will deploy in support of other units. This seemed a good option for a run out of the team.
3	Have you had any other employment roles outside of the military?	None, apart from my time at university. I have been with the military since then, moving between infantry units, the Defence Academy and SO2 / SO1 posts with land and joint command.
4	How would you describe the position that you are currently in?	As the BGHQ CO, I am the senior representative and the leader of the battle-group. I am responsible for the delivery of the Bde tactical plan, as well as the co-ordination and direction of the headquarter staff to deliver mission success. In my role all decisions eventually sit with me.
5	How many operational tours have you experienced?	I have served on a number of operational tours during my time with the military. I have conducted 2 tours of Northern Ireland, 2 of the Balkans, 1 in Kosovo, 2 in Iraq and currently 1 tour of Afghanistan. I have also conducted short deployments to Falkland Islands, Sierra Leone, Cyprus and the Oman.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As a Lt Colonel, I have completed all required courses from ACSC downwards. This would include the RMAS, Pl Comd's Battle Course, JOTEs (pre-cursor to JOTAC), Captains' Warfare Course, Combined Arms Tactics Course, ICSC(L), OC's course, the relevant MA modules, MK2 and then ACSC. I have also explored the option of a second masters' degree, having obtained my first during the ACSC.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	In my position, the key role of the Commander is to give direction and build the team. Key to this is the development and maintenance of trust within the team; As the boss, I need to demonstrate integrity and also need to see the bigger picture and translate it into actions and direction for the team. Other key elements are the development and sustainment of situational awareness; the displaying moral courage by leading through example; decision making based on fact; and when it all goes wrong, having a sense of humour to help deal with the situation.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	There needs to be a greater understanding about the importance of co-ordinated effort, joint operations and the bigger picture. The battlefield is becoming more cluttered, more dense and less open; too many of our conflicts are moving into urban or semi urban terrain. A junior officer now needs to understand the importance or joint effects, 2nd and 3rd order support to the frontline forces, logisitics planning, influence planning and the need for resource management. If we wish to be effective in the COE and FOE, we need to adapt to the future, not live in the last campaign.

9	In your opinion, what competencies would you say are critical to being a leader in the military?	In my role as the BGHQ Commander, I would deem that effective communication, adaptive thinking and values based leadership are critical to my success in role. This is supported with an understanding the wider picture, moral courage and decision making under pressure. Underpinning all this is building trust and respect within the team, knowing that everyone will work for each other when the situation is difficult.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Communication, resource management, leadership skills, authenticity, willingness to listen, planning skills, problem solving, delegation, integrity, trust, self confidence and faith in their people.
11	In your opinion, how do you see yourself within the military?	I am both a leader and a manager; it is the role of the Commanding Officer. I lead in battle by giving clear direction and making informed decisions. I manage in the barracks through my Command Staff and Sub Unit Commanders.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	In my role as the Commander, making clearly defined assessments and accountable decisions is critical; therefore it needs to be evidence based and analytical in nature. Secondly, problem solving is important to enable us to move quickly and maintain the edge against an enemy who is very resourceful and unforgiving. Finally, as a Commander, courage both moral and physical is required. There will be times, especially in the heat of battle, when tough calls need to be made to save the many over the few.
13	Have you had any formal training / education on the Comprehensive Approach?	I have had formal training at ACSC on how to apply the Comprehensive Approach; I was lucky to work with Defence personnel at ACSC to develop strategy based on a COIN situation. However, I beleive the Comprehensive Approach training comes too late - junior officers and Majors should be deeply immersed in it as well to build capability at all levels. The outcomes so far on Operation HERRICK suggests that when we get to a point to make fundamental changes to support an operation then we are willing to do, so but do it far too slowly; Op ENTIRETY for example only came into force some six to seven years after the operation started. I suspect that we are not predictive enough: on operations we have achieved ISTAR dominance happened and influence application, but without the training to support and exploit it. This is very concerning - there should be a far better level of training and development of the teams in the impact of influence operations and cultural awareness.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Yes, worked with contracted civilians for the buildup training for the Balkans. Also with the PSNI and local government officials during Northern Ireland preparational training. Iraq and Afghanistan training was not as organised; contracted role players rather than actual individuals have been in attendence. While good for a short term fix, it does not deliver the deep training experience these places require.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, in the Balkans, Northern Ireland and in Iraq where the ways of working were well established. In my previous tour in Afghanistan the approach had been more adhoc, with activities being very localised, poorly directed and without a long term strategy. There was a drive for activity but it felt like there was little long term guidance. This caused a lot of wasted time, effort, money and frustration as we lost support from the local population.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	When we were doing the training I thought that we were being given an unrealistic representation of what we would be facing in theatre. I thought that it was far too intense. In reality I was wrong; it was in fact spot on; and we were just sufficiently inoculated by the exercise complexity to cope with the reality of combat operations within MST. What we were not prepared for was the politics of MST and Afghanistan. Neither I nor my subunit commanders were ready for the degree in which we would be immersed in Afghan local politics: and the difference between the Salisbury Plain (Training Area) Afghans on training and Afghan Afghans for example is that Afghan Afghans don't become compliant after a scripted ten minutes of being difficult. The focus in training was still very much on manoeuvre, whereas for commanders we would have also benefitted from being trained in building relationships with people and understanding the application of the Comprehensive Approach.

B19 - Interview Profile 18

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am the BG 2IC. In this role I am the CO's right hand man, responsible for the management of the Headquarters and the relevant outputs required to enable effective planning and execution of the operations. As the 2IC, I direct the daily activity of the HQ, enabling the CO and the other Command Staff to conduct the planning and evaluation of the issues that the BG may face.
2	How long have you been with the organisation?	I have been with the unit for 17 years, though in this role I have spent periods away from the organisation on various tasks. Periods away include ICSC, a tour within a Bde HQ and a tour at the Land Warfare School as a senior specialist.
3	Have you had any other employment roles outside of the military?	None - I joined the military straight from University.
4	How would you describe the position that you are currently in?	If this was a civilian organisation I would be the assistant head of department of a large organisation or the COO of a SME of 650 personnel.
5	How many operational tours have you experienced?	I have depoloyed to Northern Ireland twice, Balkan regions 3 times (Kosovo x 2, Bosnia x 1) Iraq for 2 tours and Afghanistan x 1. This is my second tour of Afghanistan.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As a senior infanttry major I have attended all the relevant courses, up to and including ACSC. Key courses were RMAS, JOTES, PCBC, Combined Arms Tactics Course, Warfare course, ICSC(L) and ACSC.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	I consider the folllowig traits as very important in the role of the BG 2IC. Adaptive leadership, demonstrating the values you wish others to follow. Integrity; I am the CO's right hand man and responsible for the effective running of the HQ. Clear direction and decision making for the HQ, along with a high level of communication skills. I also need to focus on the needs of the CO, who, if this is was a civilian company, would be my senior client. Finally the need to understand the end game; seeing the bigger picture and the means to get there.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	The officer cadre of today need to be experienced to coalition operations and the concept of Hybrid conflict at an early stage of their career. It needs to be integrated into their DNA, not a bolt on. Our preparation cycle is a prime example - 1 year of high intensity multi level combat training against a Russian Horde threat, then 1 year of Middle East COIN specific training. These should be integrated into Hybrid warfare training events, not seperate actions.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Decision making, evidence based analysis, problem solving, communication skills, innovatitive thinking, optioneering, adaptive thinking, red-teaming / wargaming, crisis management, risk management, resource management and strategic thinking.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Developing your team, delegating, giving clear direction, clear advice and communication skills, information management, effective and timely planning, reviewing and improving systems, processes (Continuous Improvement), and

		stakeholder engagement - putting your client / customer at the centre of what you do.
11	In your opinion, how do you see yourself within the military?	I am a leader within Barracks and on Operations. In barracks I manage the the day to day operations, enabling the CO to strategically guide the unit. In operations, I direct, manage and give advice to the Headquarters in order to deliver the required outputs to the CO. When the CO deploys forward I take command of main HQ; I become responsible for leading the staff in the planning and execution of the mission.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	These are what I see, given my experience and current role as a senior officer in the BGHQ. The first key element is moral courage, you must be honest and true to those you serve and lead. The next is integrity; your word and image is everything when dealing with superiors during intelligence and operational briefings. The final quality is effective decision making - it is what we are paid to do.
13	Have you had any formal training / education on the Comprehensive Approach?	Yes, but not until I had gone to ACSC. There have been a number of study days of collaborative working with other agencies, but very little formal direction. This is a major over-sight on how we prepare for the COE that we are operating within.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Only when delpoying to Northern Ireland - that was quite well integrated, though it had taken us a number of years to get it right. It is a shame we seem to have gone backwards when it comes to current operational deployment preparations to the Middle East.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, during my service in Nothern Ireland and Iraq. My previous tour of Afghanistan I had no direct engagement with civilain organisations.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No - our preparation focussed on combat operations and threats, rather than the aspects of the modern COE and the political / cultural dynamic. Authors such as General Smith, Hammes and Krulak are right; we need to understand the environment and tailor our approach. Combinde Arms, working with Coalitions and OGDs is the conflict of the future - we need to develop our tatics and strategy to integrate this.

B20 - Interview Profile 19

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	I am the Detachment Commander for the Royal Military Police that would deploy in support of the Battle Group on operations to assist with legal advice, traffic management, convoy movements and management of captured personnel. As the commander, I would be involved in giving advice to the OC Headquarters on how best to maximise the limited resource within the RMP detachment.
2	How long have you been with the organisation?	I have been serving with the Army for six years and have been with my current unit for 18 months. I am due to move to another unit within the next 6 -12months, depending on the posting cycle.
3	Have you had any other employment roles outside of the military?	None
4	How would you describe the position that you are currently in?	I think the best way is to describe it as similar to a police inspector role. I manage a team of police sergeants and soldiers on a daily basis, managing investigations, police support tasks and other requirements given to me by the OC. On operations I would be deployed in support of a Battle Group and operate independently of the OC, though I would remain under his command, and only be loaned out to the Battle Group.
5	How many operational tours have you experienced?	I have experienced three tours in total. One in the Balkans (Kosovo) and two of Iraq. This is my first tour of Afghanistan.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	As a troop commander, I have completed RMAS, my special to arm training, JOTAC, JOLP and the MK1 element. I have yet to start doing the Military Analysis modules. I have a BSc in Social studies.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	The key elements that are important in my role are as follows: Resource and team management, effective planning and giving clear direction and orders to the team. As the troop commander I also need to demonstrate the core values of the military and have the moral courage to conduct my job as the detachment commander.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	From my own point of view, I found that while I had been extensively trained to lead men and women in the field, I had very little understanding of resource management, team management or how to develop soldiers' careers. These critical management qualities had not been integrated within the RMAS or Special to Arm training periods. I had to learn this from my senior staff while on the job.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Moral courage is key for the young commander; it is too easy to get side tracked by the senior NCOs into the "way it has always been" mentality. Effective planning and decision making. In this role, evidence based analysis is also critical, as our decisions need to demonstrate the evidence of the decision making cycle. Investing in the development of others is also important as a leader as I am responsible for all those under my command.
10	In your opinion, what competencies would you say are critical to being a manager in the military?	Team management is a big one, as is resource planning. There is also the ability to manage change effectively and at times think outside the box - sometimes the problems you need to solve in the military do not always have a clear solution at the start.

11	In your opinion, how do you see yourself within the military?	I see myself as a manager of a small and specialised team of individuals. I am responsible for their career development, safety and performance. As the boss it is up to me to make sure what we do adds value to the organisation. I am responsible for building and maintain the relationship with the Battle Group leadership team, ensuring I focus on their operational requirements.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	Moral courage, demonstration of the integral values of the Army and effective decision making; this is the role of the Troop Commander.
13	Have you had any formal training / education on the Comprehensive Approach?	None
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	Yes, on regular occassions I have worked with local and international police forces while doing my job.
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	As above, though it is only really the police / justice department agents that I would work with, rather than other organisations.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	Not at all. The political pressures and social issues that were present on operations were nothing we had been prepared for as a Troop Commander. Though the activities were similar to that experienced on training, the complexity was far and above anything I had witnessed.

B21 - Interview Profile 20

Initial Evidence Gathering Questions		
No.	Question	Response
1	What is your role in the organisation?	My role is a Troop Commander of an Armoured Squadron. I am in charge of four armoured vehicles and work to the Squardon Leader. As part of the exercise I am here as one of the Battle group Liaison Officers.
2	How long have you been with the organisation?	I have been with the uniy now for just over four years, hence the reason I am a Lieutenant. I am soon to enter into my promotion window to Captain. This will enable me to look at other roles witihin the military, such as a Phase 1 or Phase 2 training unit Troop Commander role
3	Have you had any other employment roles outside of the military?	None except university.
4	How would you describe the position that you are currently in?	It is both a junior manager and a leader of men role. I manage the troop when we are in camp. Along with my senior ranks, I am responsible for making sure I enable the troops to develop their career in line with the squaron Leader's policy and development framework. Outside of camp, I am responible for the management of the troop vehicles, the teams and leading them effectively during exercise and on operations.
5	How many operational tours have you experienced?	I have experienced one operational tour to date. It was during the last phase of Op TELIC (Iraq) where I was one of the Iraqi Army mentors sent out to help develop their capability. This will be my first tour of Afghanistan.
6	Have you received the following training / development courses? a. ACSC b. ICSC c. Captain's Warfare Course (or equivalent) d. Junior Officers Tactical Development Course (or equivalent) e. Junior Officer's Special to Arm training f. Junior Officer's initial training g. Late Entry Officer's Education course h. Military analysis modules i. Masters level education j. Degree level education	I have attended RMAS, Troop Leaders' Course (Special to Arm), JOTAC, MK1 and JOLP. On promotion to Captain I will start my Military Analysis modules, MK2 and the Captain's Warfare Course. Regards uni courses, I have a BA in Business management, though that is not much use to me as an Armouted Troop Commander at the moment.
7	What elements do you consider important in your role as an Officer / middle management within the organisation?	As a Troop Leader the key factors are the clear decision making, problem solving (the troops can give you lots of problems to solve), moral courage and demonstrating the key values of being an officer. These are ingrained into us at Sandhurst and it is what the soldiers expect us to do, The other key role is looking after the soldiers; welfare, career and in general helping them develop.
8	Following on from the attached questionnaire how would you suggest the military build the capability of the officer cadre for today's conflicts?	Although man management and the management of the various vehicles and other resources that are within the Troop sits on my head, I had very little prepartion for it at RMAS and Special to Arm training. It is one area the Army really lets down the junior officer; we have to learn it on the job. Another element where we could get better in people centric warfare; coming to CAST(S) was the first time I had really be given a clear understanding of what is was, how it impacted on operations and the importance of influence campaigns. We can only see the big picture if we are taught what to look for.
9	In your opinion, what competencies would you say are critical to being a leader in the military?	Moral courage, decision making, demonstrating the values and standards, developing trust, problem solving and driving contant improvement to processes and methods to make us perform better under pressure. These are key at my level. Also the building of trust and integrity within the team to get the job done.

10	In your opinion, what competencies would you say are critical to being a manager in the military?	Resource and man-management, decsion making, managing change and being able to improve the way we do things. Also conducting regular performance reviews and auditing the paperwork and management processes. This is what I do in my role when managing the Troop within barracks.
11	In your opinion, how do you see yourself within the military?	I would see myself as a blend of a junior leader with management responsibilities. I think tht is how most young officers within the teeth arms would view themselves. We have to look after our soldiers, but when the fighting starts we have to lead them into the conflict and do what is best for the organisation; values based leadership is very difficult in times of conflict.
12	If forced to choose 3 qualities of an officer, what three would you say are key for the role in today's environment?	For my role, the three are decision making, showing moral courage and demonstratiing the values and standards by looking after the troops.
13	Have you had any formal training / education on the Comprehensive Approach?	Very little and most of it haas been informal. CAST(S) is the first real time we have been shown the importance of an Integrated Approach, influence campaigns and how stabilisation plays a major factor.
14	Have you worked / trained with OGDs / NGOs or civilian organisations in preparation for operational deployment?	No
15	Have you worked with OGDs / NGOs / Civilian security organisations on operations?	Yes, Iraqi security forces and some US police department officials who had been embedded with the Iraqi police to help build capability.
16	In your opinion, were you prepared for the complex environment that you found yourself serving within on operations?	No - I was for the leadership element and the ability to lead and manage the Troop in conflict. What I struggled with in Iraq was the politics, cultural issues and the various inter tribal / inter agencies hidden agendas which sought to derail almost every element of the task. These things are key to building a lasting and resilient framework, but we seem to ignore the importance of long term influence and capability building.

ANNEX C: DATA EXPLOITATION

C1 – Interview Scoring Matrix Table

Initial Evidence Gathering Questions				Middle Management Competencies												
				Building Organisational Capability				Promoting Integrity and Values				Effective Leadership				
Interviewee	Position	Experience (tours)	Rank	Thinking strategically	Applying innovative responses	Promoting lateral thinking	Delivering change	Demonstrate moral courage	Promote military values	Demonstrate values based leadership	Inspire honesty and integrity	Promote effective communication	Demonstrate sound decision making	Use evidence based analysis	Demonstrate effective problem solving	Effective planning to deliver results
1	A Coy Comd 3 Yorks	5	Maj			1		1	1	1	1	1	2	2	1	1
2	B Coy Comd 3 Yorks	4	Maj						1	2		2	2		1	1
3	C Coy Comd 3 Yorks	5	Maj	2			1			1		1	1	2	1	
4	Support (D) Coy comd 3 Yorks	5	Maj			1		1				1	2	2		
5	Regt Intel Officer 3 Yorks	4	Capt					1	1		1	1	2	2		
6	Pl Comd 1 Royal Welch	2	Capt		1		1	2				1	2	1	1	
7	B Coy Comd 1 Royal Welch	5	Maj	1			1	2	1	1			2	1		
8	Sqn Leader KRH	5	Maj	1	1	1	1	2				1	2	1	2	
9	Stabilisation Advisor	4	Capt	1			1	2			1	1	2	2	1	
10	Battery Commander	5	Maj	1	1		1	2	1		1	1	2	2	1	1
11	FST Commander	2	Capt	1				1	2	1	1	1	2	2	1	1
12	Battery Command Post Officer	8	Capt	2				1	2	1		1	2	1	1	1
13	TACP Commander	4	Capt	1	2	1		1			1	1	1	2	2	1
14	OC RLC Sqn	3	Maj	1				1		1	1	1	1	2		2
15	BG Liaison Offr	3	Capt	1		1		1		1		2	2	1		1
16	BG Engineer	4	Capt	2	1			2			1	1	2	1	1	1
17	1 R Ang CO	8	Lt Col	1		1		2	1	1	1	1	1	2	2	1
18	1 R Ang 2IC	8	Maj			1		2		1	2	1	2	1	1	1
19	Tp Comd RMP	3	Capt			1	1	2	2				2	1	1	1
20	Tp Comd KRH	1	Lt				1	2	2	1	1		2		1	
	Quality Score			15	6	8	6	24	10	11	11	19	32	28	16	13

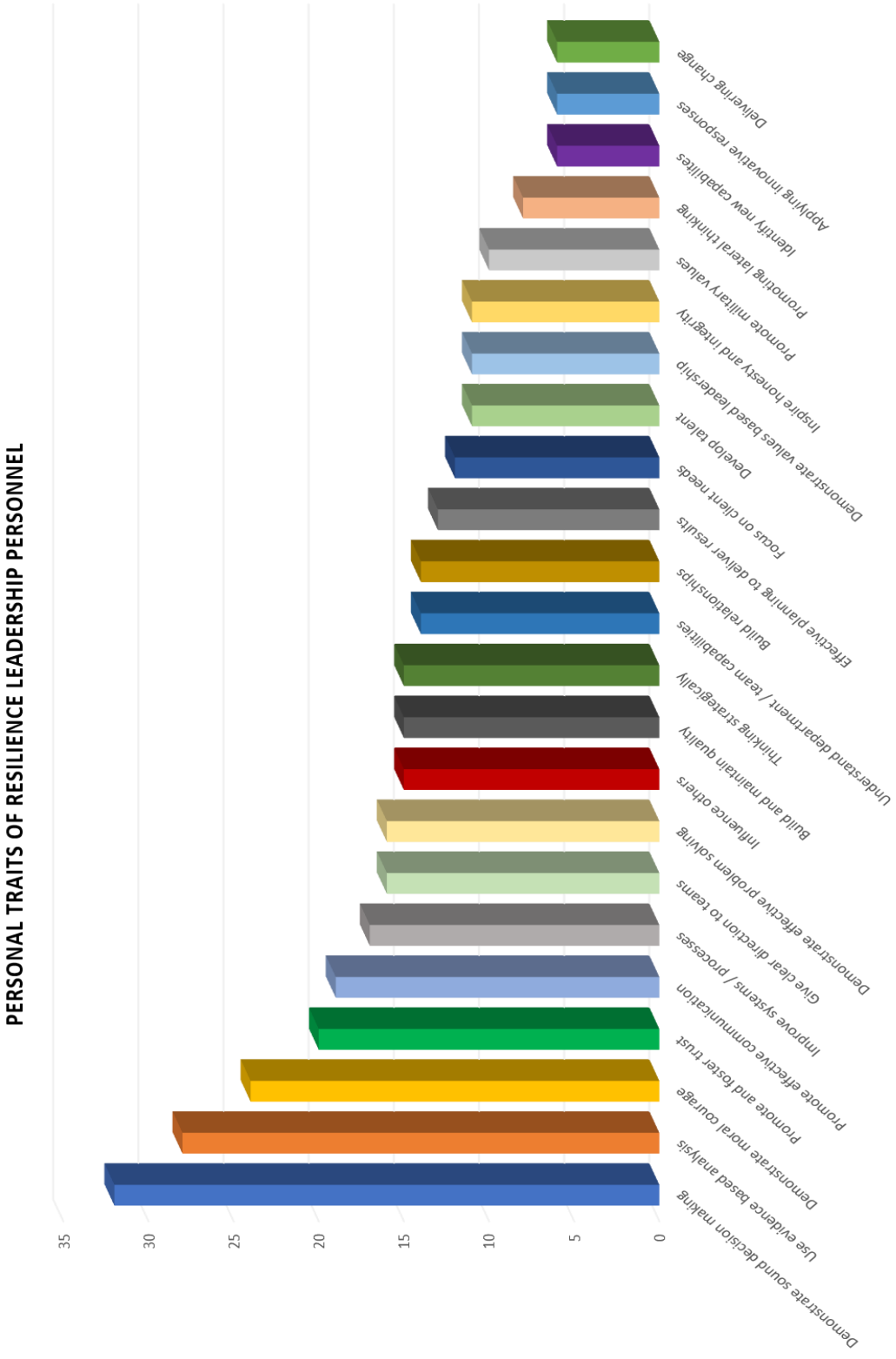
People Development Focussed						Technical Specialism Focussed			
Understand department / team capabilities	Influence others	Promote and foster trust	Give clear direction to teams	Build relationships	Develop talent	Improve systems / processes	Identify new capabilites	Build and maintain quality	Focus on client needs
	1	2	1	1	2	1			1
	1	1	1		1	1		1	
	1	2	1	1	1				1
1		2			1	1	1	1	
1	1	2	1	1	1	1		1	1
1		2	1			1			
1	1	2	1			1		1	1
1	1	1	1	1	1	1		1	1
1	1	1		1	1	1	1	1	1
1	1		1	1		1	1	1	
1	1	1	1	1		1	1	1	
1	1	1	1	1	1	1		1	1
1		1	1			1		1	1
1			2		1	1		1	
1	1		1	2		1	1	1	
	1	1		1		1		1	1
1	1	1	1	1		1		1	1
1	1		1	1	1	1	1	1	1
1	1	1	1	1	1				1
1		1	1		1	1		1	
14	15	20	16	14	11	17	6	15	12

C2 – Military Personnel Interview Domains

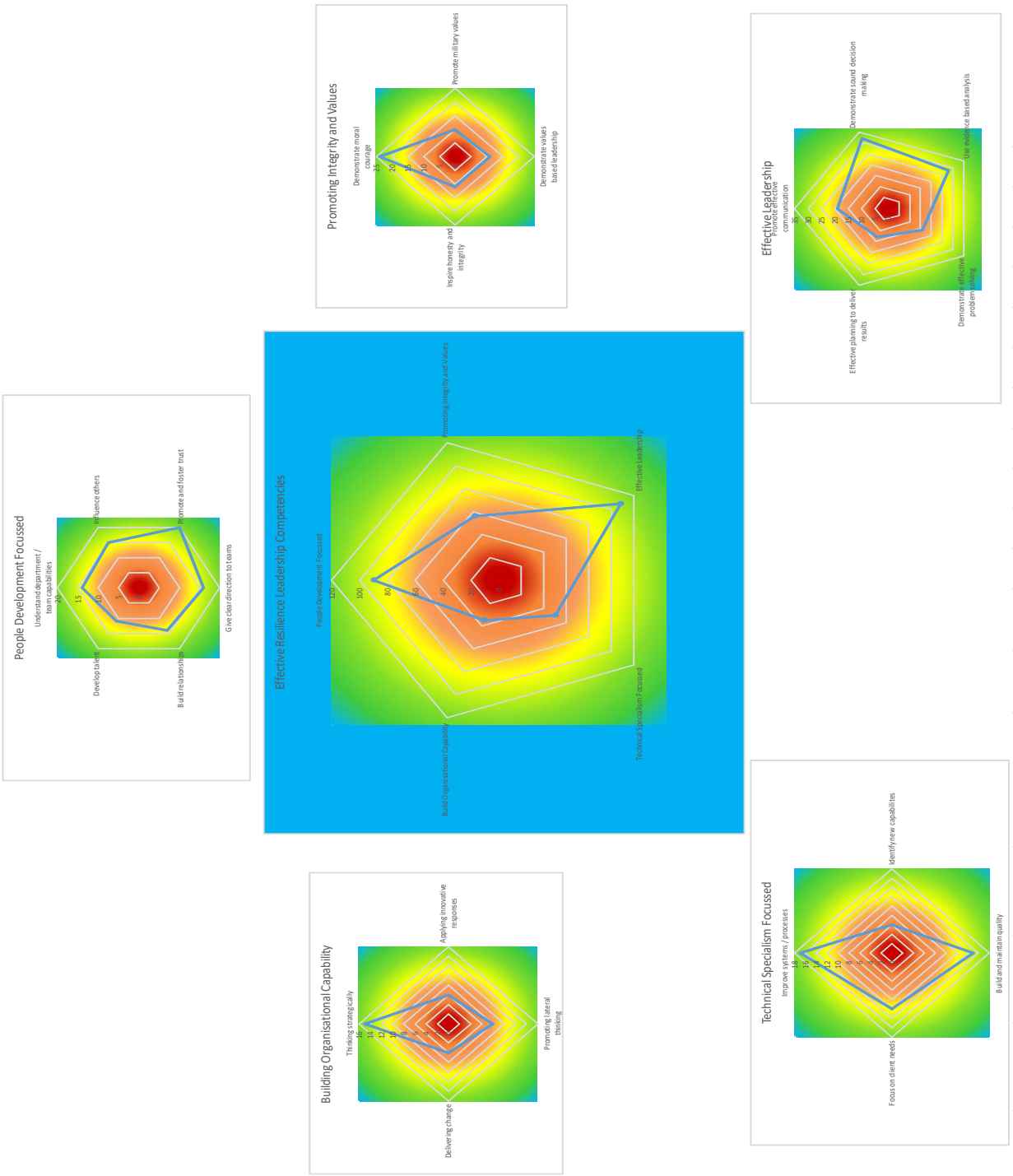
Serial (a)	Domain (b)	Personal Trait (c)	Score (d)
1.	Building Organisational Capability	Thinking strategically	15
2.		Applying innovative responses	6
3.		Promoting lateral thinking	8
4.		Delivering change	6
5.	Promoting Integrity and Values	Demonstrate moral courage	24
6.		Promote military values	10
7.		Demonstrate values based leadership	11
8.		Inspire honesty and integrity	11
9.	Effective Leadership	Promote effective communication	19
10.		Demonstrate sound decision making	32
11.		Use evidence based analysis	28
12.		Demonstrate effective problem solving	16
13.		Effective planning to deliver results	13
14.	People Development Focussed	Understand department / team capabilities	14
15.		Influence others	15
16.		Promote and foster trust	20
17.		Give clear direction to teams	16
18.		Build relationships	14
19.		Develop talent	11
20.	Technical Specialism Focussed	Improve systems / processes	17
21.		Identify new capabilities	6
22.		Build and maintain quality	15
23.		Focus on client needs	12

Table 4 - Individual Interview scoring results

C3 – Resilience Leadership Personal Traits



C4 - Resilient Leadership Qualities



ANNEX D: QUESTOINNAIRES

D1 – Military Questionnaire

Serial (a)	Domain (b)	Question (c)
1	Initial preparation	The level of training at RMAS/Cranwell/Lympstone prepared me for my first position as a Junior Officer.
2		The level of education at RMAS/Cranwell/Lympstone prepared me for my first position as a Junior Officer.
3	Continued development	The level of leadership training within the military throughout my military career is correct.
4		The quality of formal leadership training received within the military is at the correct level required.
5		The level of training and education received at my Young Officers course / LEOC prepared me for the role in barracks of managing soldiers and resources.
6.		The level of training and education received at my Young Officers course / LEOC prepared me for the role of leading soldiers in the field.
7.		The level of training received during my military career has always prepared me for my next position.
8.		The level of professional military education received during my military career has always prepared me for my next position.
9.	Utilising capability	The Army has managed to match my capabilities and experience to a position where it will benefit the organisation.
10.		My immediate chain of command (Maj - Colonel) understand my requirement for professional development and assist me in achieving it.
11.		The senior chain of command (Brigadier +) understand my requirement for professional development and assist me in achieving it.
12.	Providing developmental support	The organisation has provided the resources (IT, funding, support staff) to support my professional development within the field of leadership and management.
13.		The organisation has provided the correct level of time to support my professional development within the field of leadership and management.
14.		The organisation has provided the resources (IT, funding, support staff) to support my continued education throughout my career.
15.		The organisation has provided the correct level of time to support my continued education throughout my career.
16.	Building conceptual flexibility and adaptability	The level of PME for junior officers (2nd Lt - Capt) is at the correct level.
17.		The level of PME for mid ranking officers (Maj - Colonel) is at the correct level.
18.		An officer still benefits from completing a degree course prior to beginning at the RMAS/Cranwell/Lympstone.
19.		The organisation would benefit from creating a pool of culturally aware officers through the attendance of junior officers on specific country based long university courses.
20.	Investing in a Comprehensive Approach	I have an acceptable level of knowledge of Other Government Departments to enable me to work alongside them on operations.
21.		I have had a good level of interaction while serving in the military with Other Government Departments which has prepared me to work with them effectively on operations.
22.		My current level of professional knowledge ensures that I am comfortable working within a Joint (Army, Navy and/or RAF) Headquarters environment.
23.		I have a professional awareness of the Comprehensive Approach and understand the relationship between the military and civilian organisations in delivering it.
24.	Maintaining conceptual adaptability	What is your background? Rank, Operational tours, experience, courses attended, time served.
25.		How could the military develop its approach to professional military education?
26.		Have you managed to obtain any accreditation for the training / education you have completed?

D2 – rail industry Questionnaires

D2.1 Resilience Questionnaire

Serial (a)	Domain (b)	Question (c)
1	Initial preparation	The level of Resilience training at Network Rail prepared me for my first management position in the company
2		The level of Resilience education given at Network Rail prepared me for my first management position
3	Continued development	The level of Resilience training within Network Rail throughout my management career is correct.
4		The quality of formal leadership training received within Network Rail is at the correct level required for my role.
5		The level of Resilience training and education received within Network Rail prepared me for the role in managing people and resources.
6.		The level of Resilience training and education received within Network Rail prepared me for the role of leading personnel during incidents.
7.		The level of training received during my career has always prepared me for my next position.
8.		The level of professional education received during my career has always prepared me for my next position.
9.	Utilising capability	The Company has managed to match my capabilities and experience to a position where it will benefit the organisation.
10.		My immediate line manager (Band 4-2) understand my requirement for professional development and assist me in achieving it.
11.		The department head / senior manager (Band 1 +) understands my requirement for professional development and assist me in achieving it.
12.	Providing developmental support	The organisation has provided the resources (IT, funding, support staff) to support my professional development within the field of leadership and management.
13.		The organisation has provided the correct level of time to support my professional development within the field of leadership and management.
14.		The organisation has provided the resources (IT, funding, support staff) to support my continued education throughout my career.
15.		The organisation has provided the correct level of time to support my continued education throughout my career.
16.	Building conceptual	The level of Resilience education and training for middle managers (Band 4-2) is at the correct level.

17.	flexibility and adaptability	The level of Resilience education and training for senior ranking managers (Band 1+) is at the correct level.
18.		A manager would benefit from completing a management Higher Education course prior to beginning a management role.
19.		have an acceptable level of knowledge of Other rail industry Departments to enable me to work alongside them during a major disruptive event.
20.	Investing in a Collaborative Approach	I have had a good level of interaction while serving in Network Rail with Other rail industry Departments which has prepared me to work with them effectively during a major disruptive event.
21.		My current level of professional knowledge ensures that I am comfortable working within a collaborative environment with other rail industry elements and the emergency services.
22.		I have a professional awareness of a Collaborative Approach and understand the relationship between the emergency services and the rail industry.
23.	Maintaining conceptual adaptability	What is your background? Operational Experience, courses attended, current position.
24.		What is your Band level?
25.		How long have you been employed by Network Rail?
26		How could the Company develop its approach to the development of a Resilience Culture?
27		Have you managed to obtain any of the following accreditation / education during your employment?

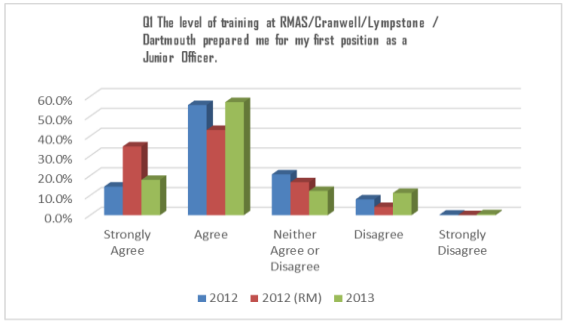
D.2.2 Behaviours Questionnaire

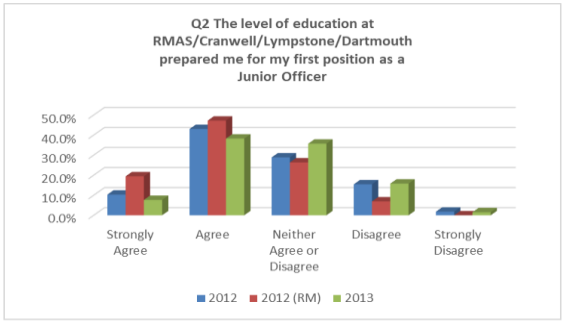
Serial (a)	Domain (b)	Question (c)
1	Capability Development	**My immediate manager (1 position above) supports and understands my personal development plan.**
2		**My senior manager (2 positions above, if applicable) supports and understands my personal development requirement.**
3		**The company / organisation supports my personal development through financial support**
4		**The company / organisation supports my personal development through the allocation of specific development time**
5		**I have regular continuous personal development meetings with my manager to help manage my career**
6.		**My objectives are set early and regularly reviewed by my manager with me to help develop my ability**
7.		**I have regular meetings and discussions with other members of the industry access planning domain to develop a professional understanding of each other's department**
8.	Collaborative Working	**I feel that the organisation empowers me to challenge a decision I feel is not correct and will not penalise me for doing so.**
9.		**I feel comfortable in challenging the current planning process based on the information that is inputted into the system.**
10.		**I understand the current cultural climate of the industry**
11.		**I am comfortable working with my fellow industry planning members and believe they act professionally**
12.		**I believe my fellow planner across the TOCs/FOCs show a collaborative approach to planning.**
13.		**I believe my fellow planners across the contractor domain show a collaborative approach to planning**
14.		**I believe that my fellow planners across Network Rail show a collaborative approach to planning**
15.	Communication	**I receive information that is critical to my role early which enables me to plan effectively**
16.		**My organisation has a well defined and communicated behavioural and cultural framework.**
17.		**I regularly seek feedback from others I work with on my performance and behaviours**
18.		**I regularly receive feedback from my immediate manager on my performance and behaviours**
19.	Effective Working	I am comfortable with taking accountability to develop my own professional development within my department
20.		I attend regular competency reassessments to enable me to remain capable within my role
21.		I understand my capability framework for my role
22.		I am comfortable with the current industry access planning process.
23.		Network Rail listens and understands the planning requirements and needs of the industry
24.		My team is fully staffed, fully functional and is regularly developed through courses and continuous professional development events

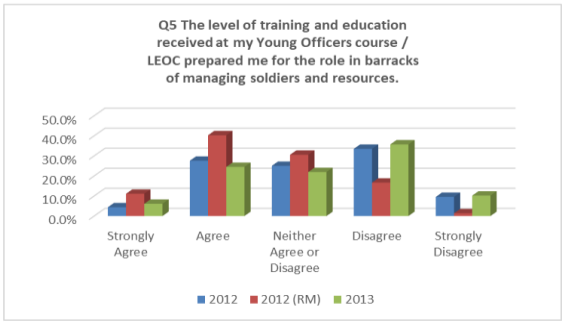
25.		I feel valued within my team
26.		I have the received the right amount of training to enable me to do my job to the best of my ability
27	Developing Leadership Capability	I believe that the best way to make people want to work harder is to pay them more or award larger bonuses
28		The industry is currently working efficiently and collaboratively
29		Managers are held accountable for their decisions
30		I feel my manager trusts me to do my job without supervision
31	Continuous Improvement	Please indicate what part of the railway industry you are from?
32		What is your organisation (NR,FOC, TOC or Contractor) and seniority level?
33		How long have you been in your current role (in the industry) and what professional training have you received to do your role?
34		How has your training / education / professional development prepared you for working within a collaborative and pressurised cross industry position?
35		How has your organisational management supported your professional development within the field of leadership and management?
36		In what way do you think the industry could develop a more collaborative approach to planning?
37		In your opinion, what are the current major issues with the industry culture that affects the planning process? Why do you think this?

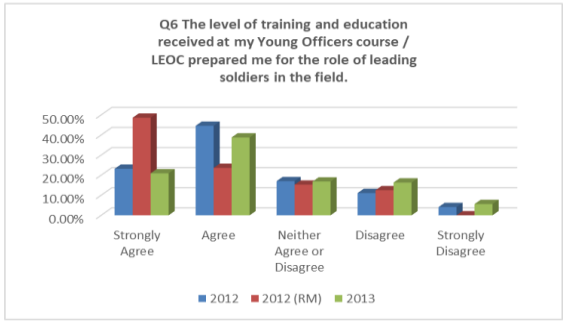
ANNEX E: DATA RESULTS

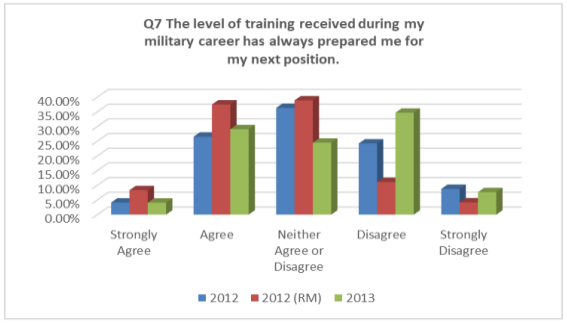
E1 – Military Questionnaire Results

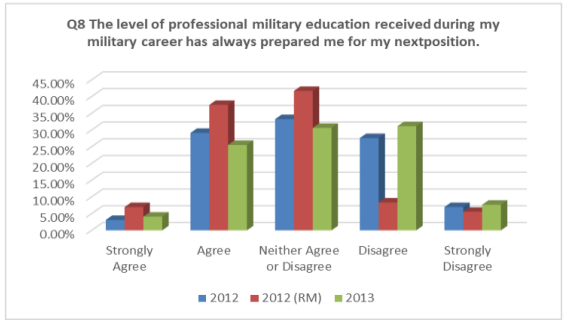


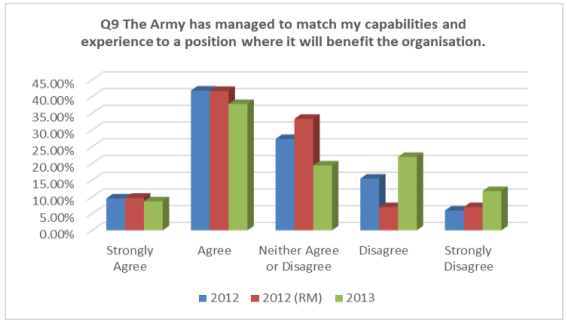


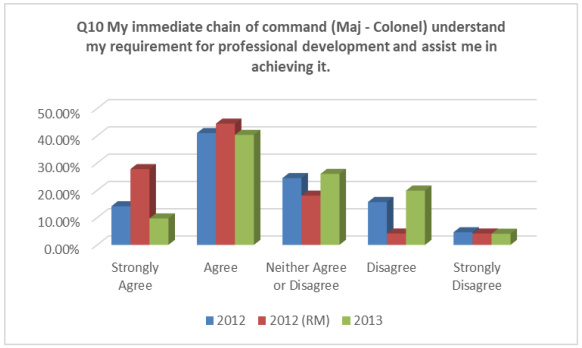


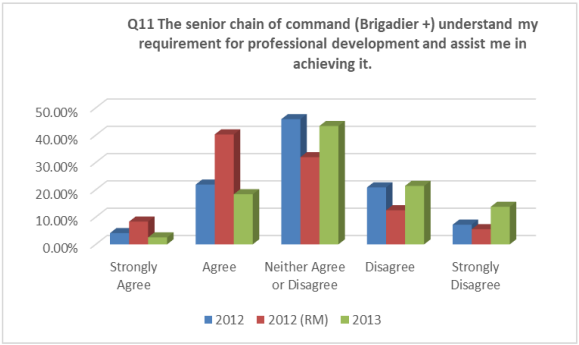






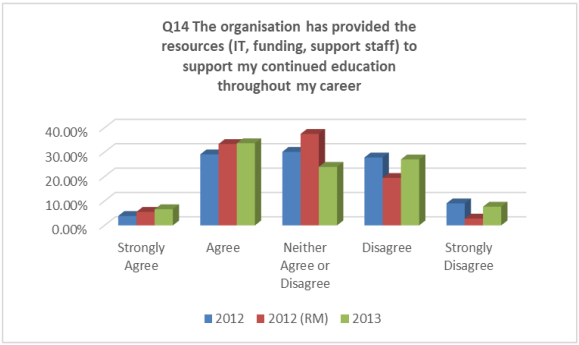


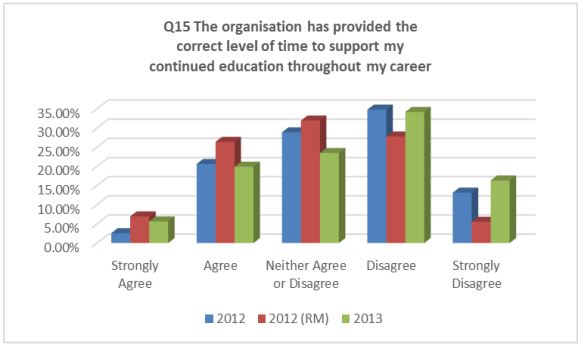

Q10 My immediate chain of command (Maj - Colonel) understand my requirement for professional development and assist me in achieving it.
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

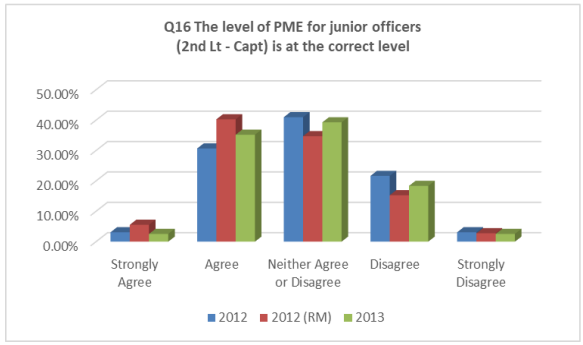

Q11 The senior chain of command (Brigadier +) understand my requirement for professional development and assist me in achieving it.
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

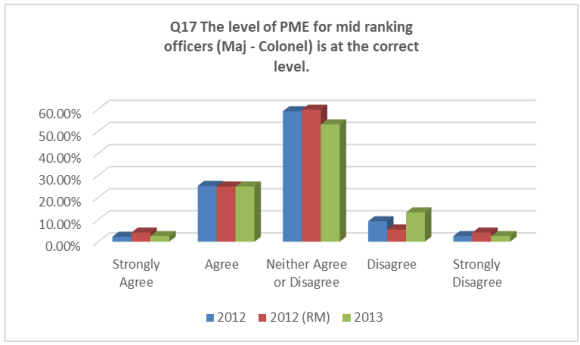

Q12 The organisation has provided the resources (IT, funding, support staff) to support my professional development within the field of leadership and management.
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

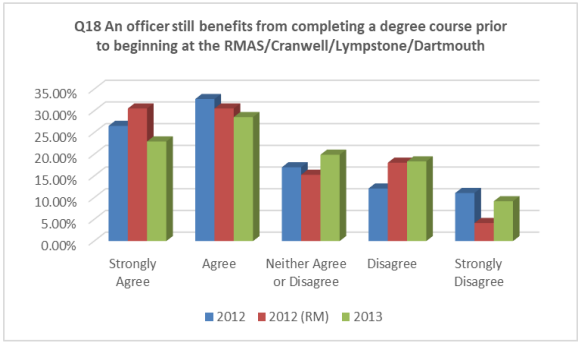

Q13 The organisation has provided the correct level of time to support my professional development within the field of leadership and management.
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

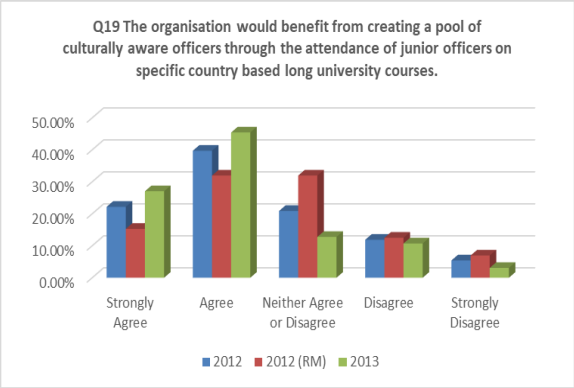

Q14 The organisation has provided the resources (IT, funding, support staff) to support my continued education throughout my career
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

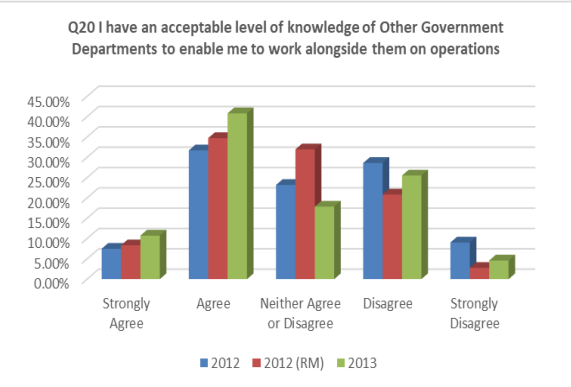

Q15 The organisation has provided the correct level of time to support my continued education throughout my career
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

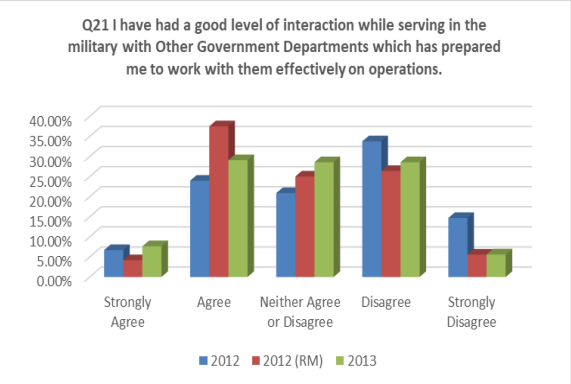

Q16 The level of PME for junior officers (2nd Lt - Capt) is at the correct level
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

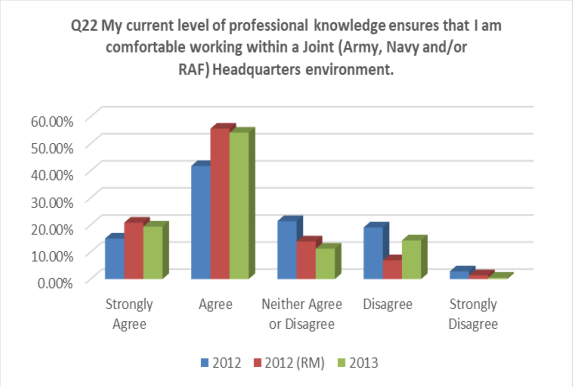

Q17 The level of PME for mid ranking officers (Maj - Colonel) is at the correct level.
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

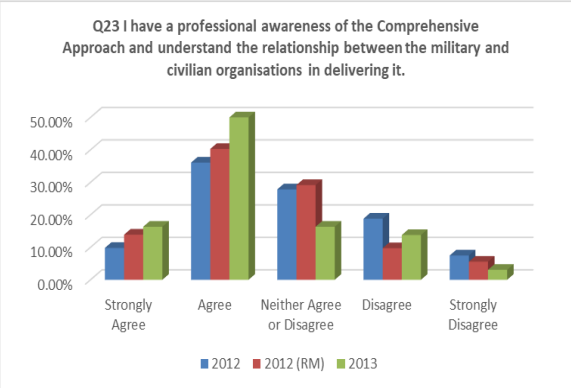

Q18 An officer still benefits from completing a degree course prior to beginning at the RMAS/Cranwell/Lympstone/Dartmouth
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013


Q19 The organisation would benefit from creating a pool of culturally aware officers through the attendance of junior officers on specific country based long university courses.
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

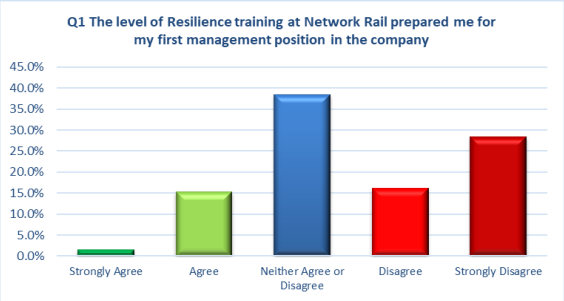

Q20 I have an acceptable level of knowledge of Other Government Departments to enable me to work alongside them on operations
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

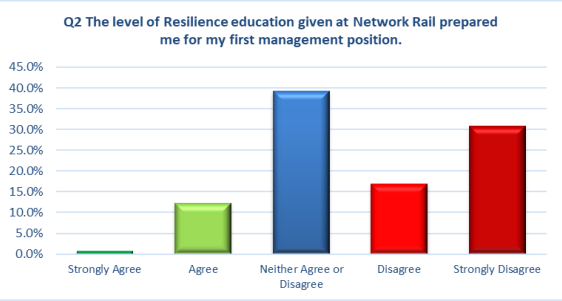

Q21 I have had a good level of interaction while serving in the military with Other Government Departments which has prepared me to work with them effectively on operations.
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

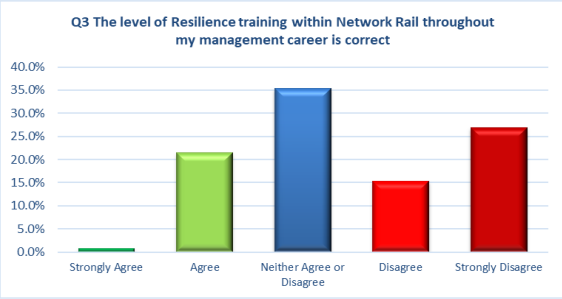

Q22 My current level of professional knowledge ensures that I am comfortable working within a Joint (Army, Navy and/or RAF) Headquarters environment.
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

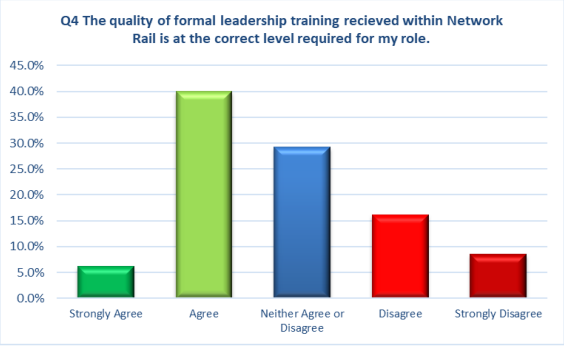

Q23 I have a professional awareness of the Comprehensive Approach and understand the relationship between the military and civilian organisations in delivering it.
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
2012
2012 (RM)
2013

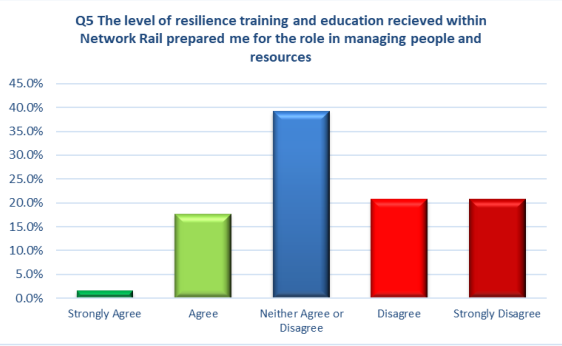
E2 – rail industry Analysis – Resilience Capability

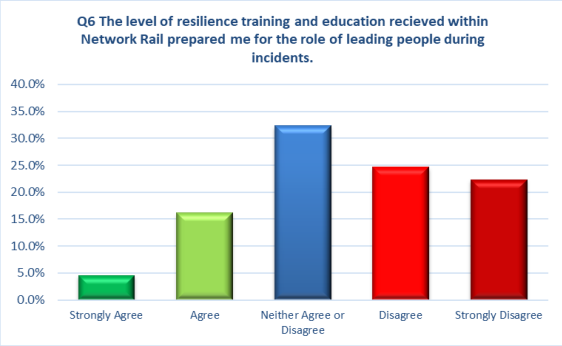


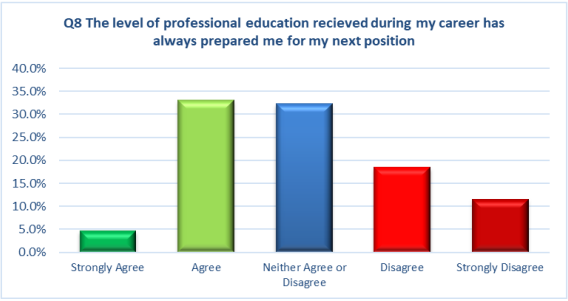


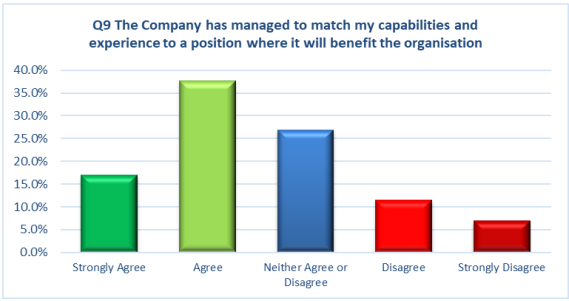


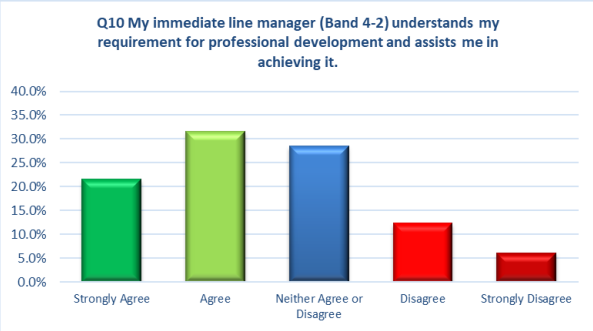


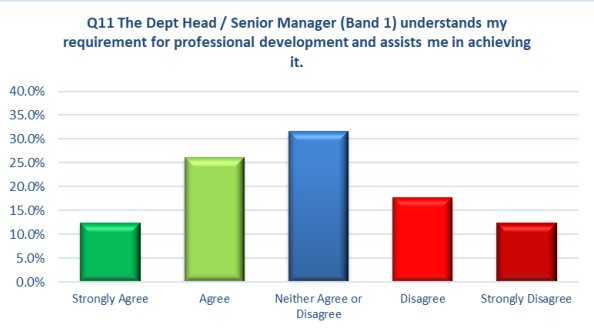


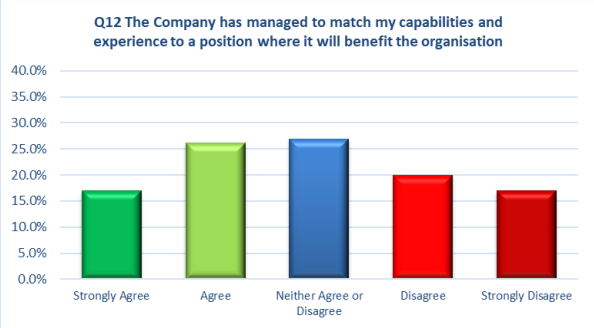


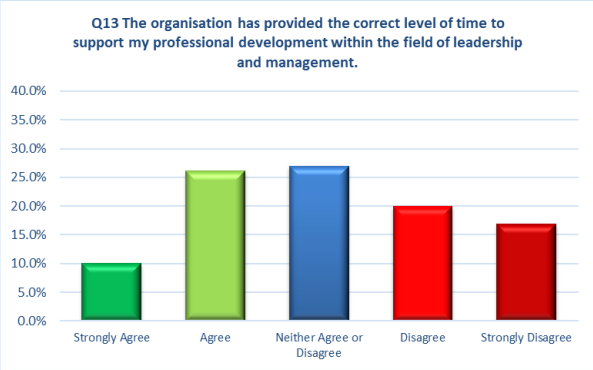


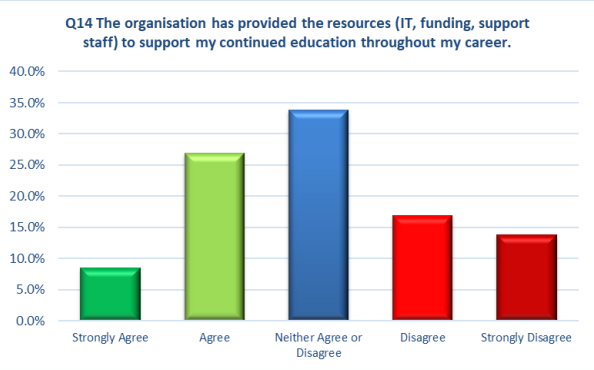


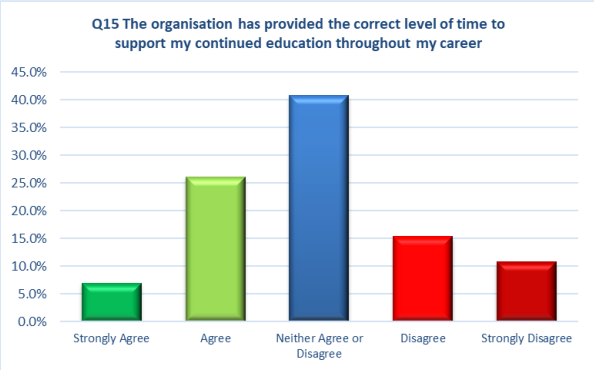

Q10 My immediate line manager (Band 4-2) understands my requirement for professional development and assists me in achieving it.
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

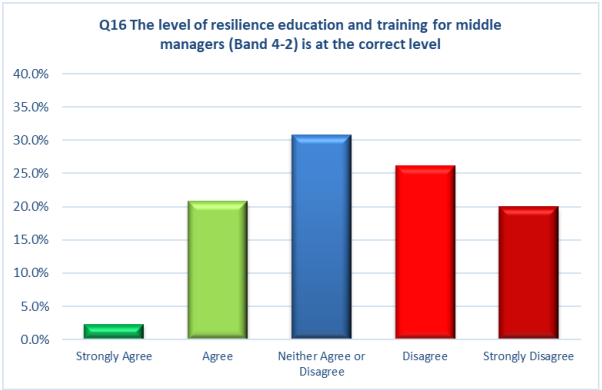

Q11 The Dept Head / Senior Manager (Band 1) understands my requirement for professional development and assists me in achieving it.
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

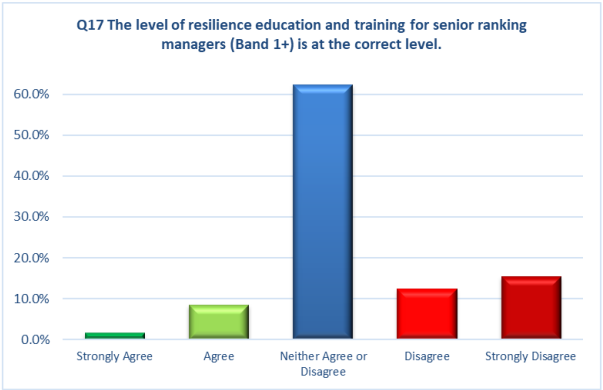

Q12 The Company has managed to match my capabilities and experience to a position where it will benefit the organisation
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

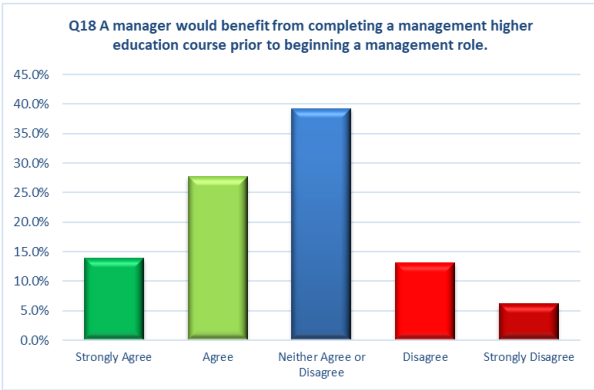

Q13 The organisation has provided the correct level of time to support my professional development within the field of leadership and management.
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

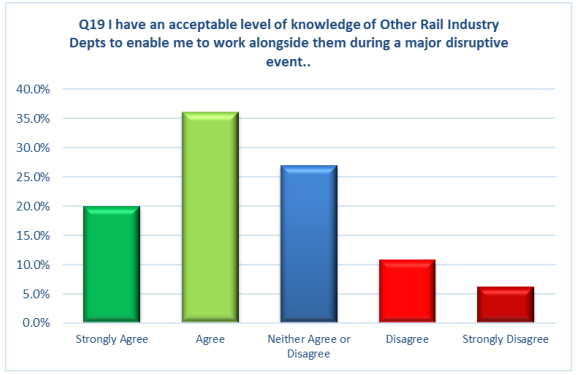

Q14 The organisation has provided the resources (IT, funding, support staff) to support my continued education throughout my career.
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

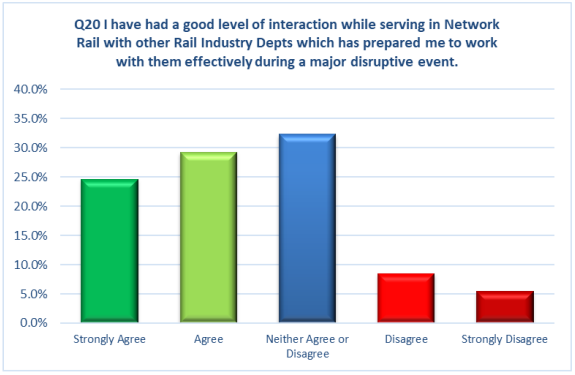

Q15 The organisation has provided the correct level of time to support my continued education throughout my career
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

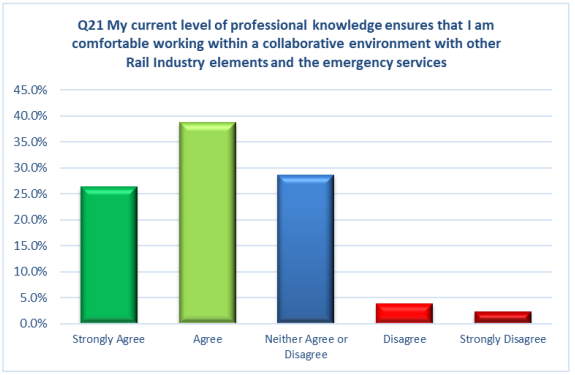

Q16 The level of resilience education and training for middle managers (Band 4-2) is at the correct level
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

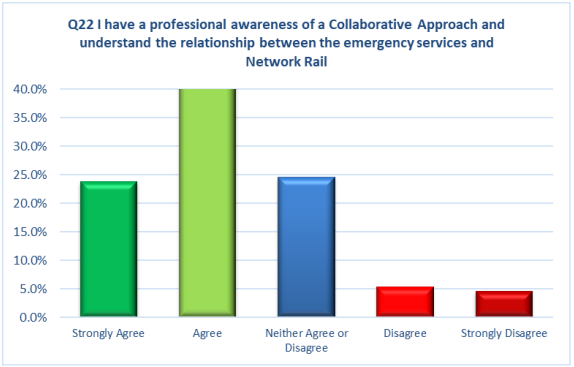

Q17 The level of resilience education and training for senior ranking managers (Band 1+) is at the correct level.
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

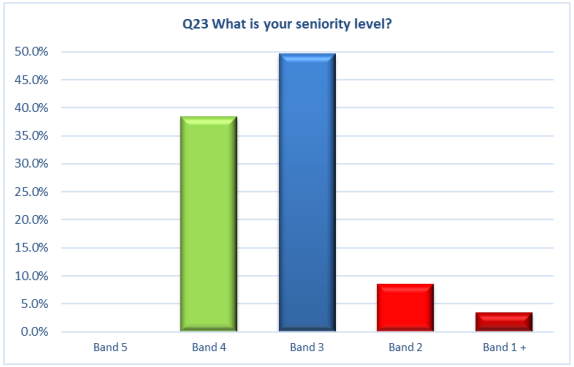

Q18 A manager would benefit from completing a management higher education course prior to beginning a management role.
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

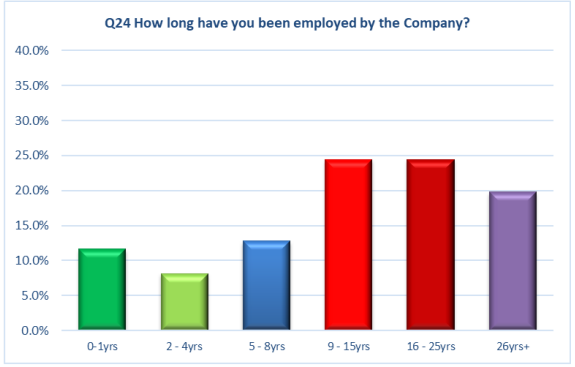

Q19 I have an acceptable level of knowledge of Other Rail Industry Depts to enable me to work alongside them during a major disruptive event..
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree


Q20 I have had a good level of interaction while serving in Network Rail with other Rail Industry Depts which has prepared me to work with them effectively during a major disruptive event.
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

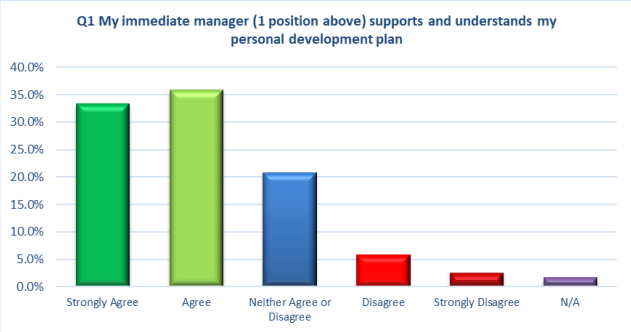

Q21 My current level of professional knowledge ensures that I am comfortable working within a collaborative environment with other Rail Industry elements and the emergency services
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

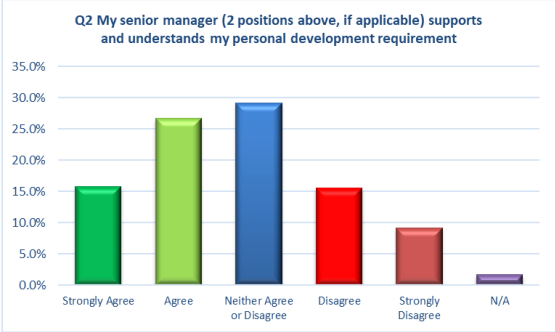

Q22 I have a professional awareness of a Collaborative Approach and understand the relationship between the emergency services and Network Rail
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree

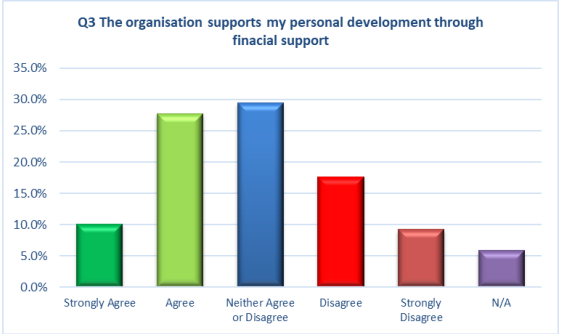

Q23 What is your seniority level?
50.0%
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Band 5
Band 4
Band 3
Band 2
Band 1 +

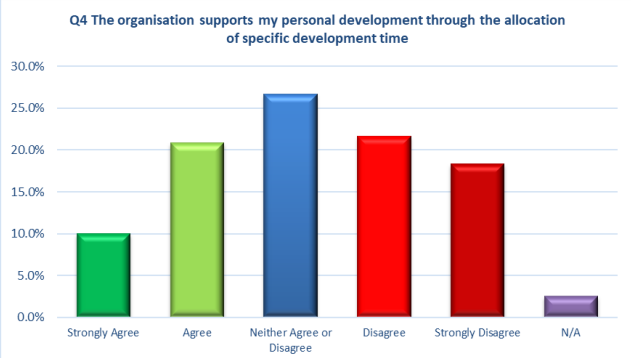

Q24 How long have you been employed by the Company?
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0-1yrs
2 - 4yrs
5 - 8yrs
9 - 15yrs
16 - 25yrs
26yrs+

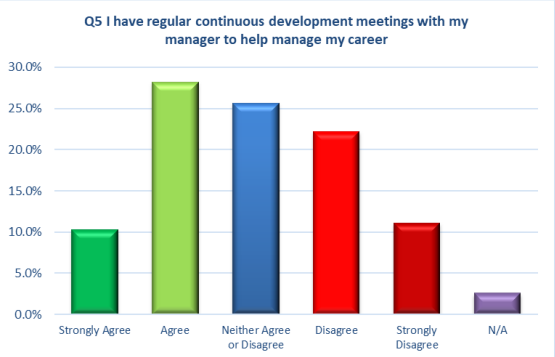
E3 – rail industry Analysis – Strategic Planning Behaviours

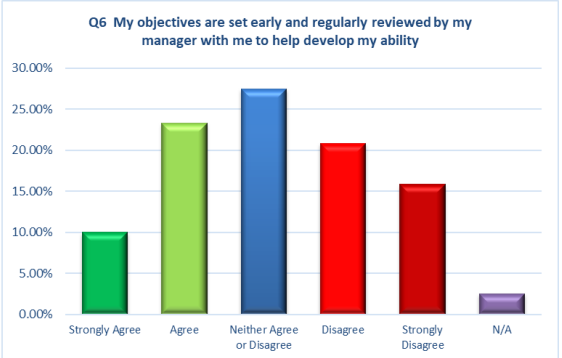


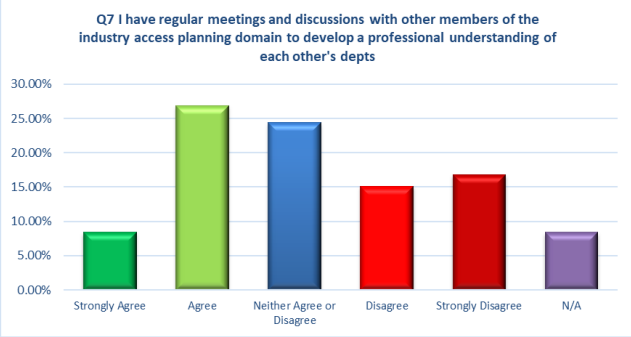


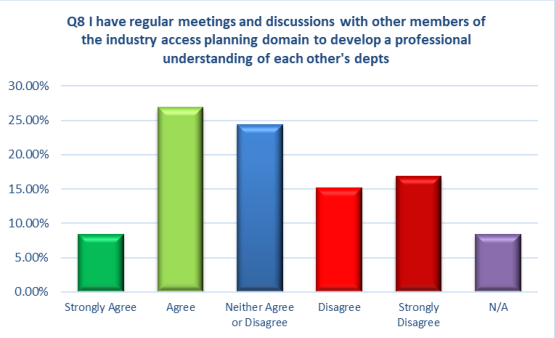


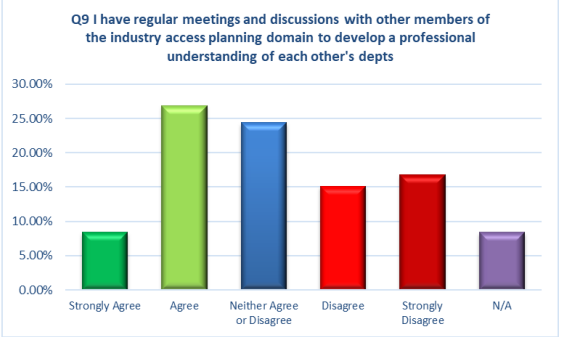


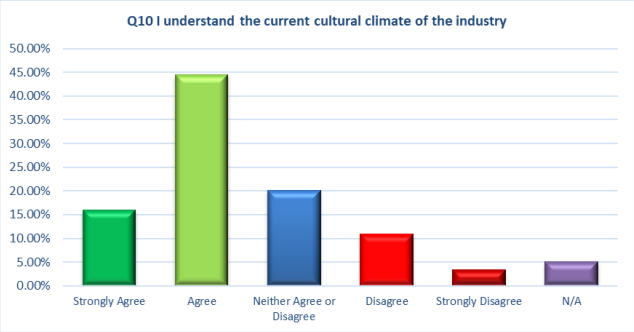


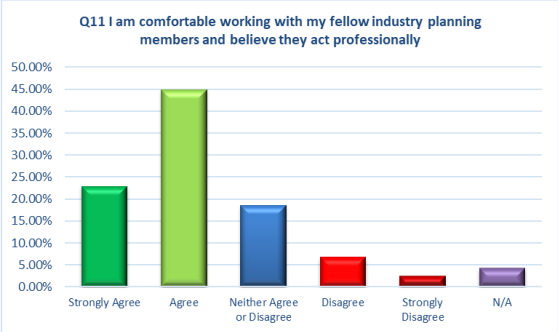


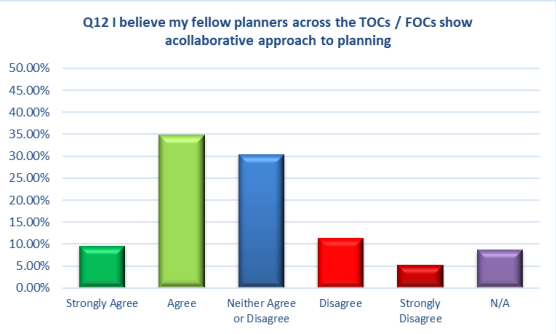


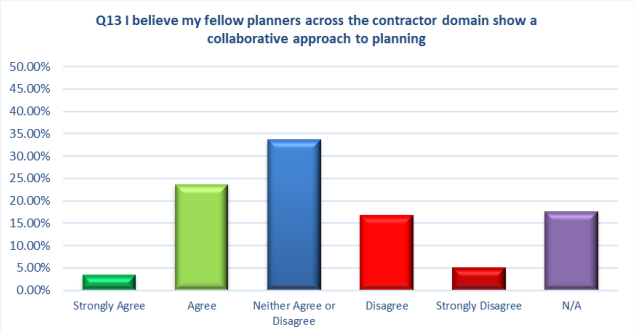


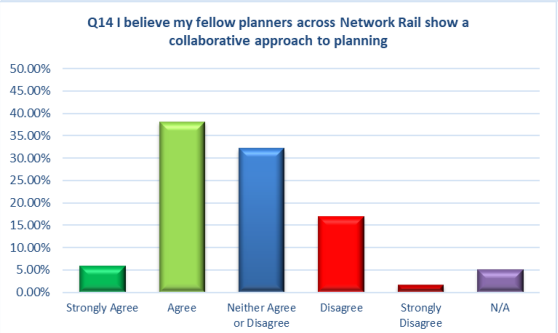


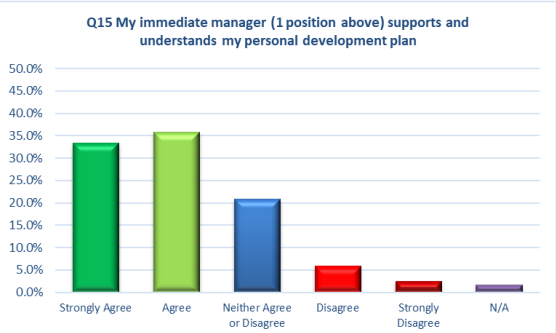

Q10 I understand the current cultural climate of the industry
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

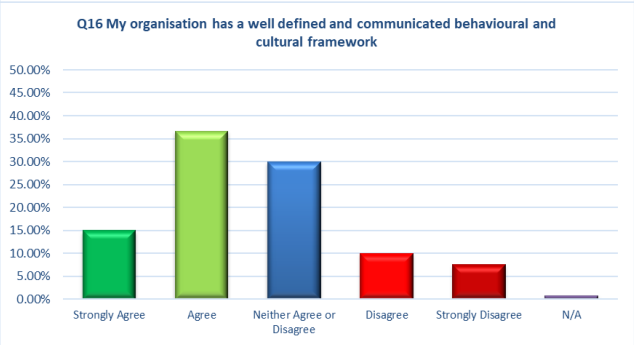

Q11 I am comfortable working with my fellow industry planning members and believe they act professionally
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

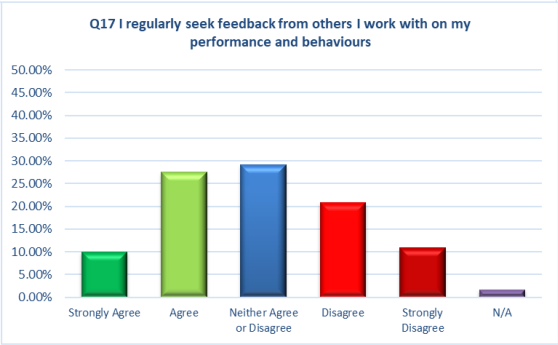

Q12 I believe my fellow planners across the TOCs / FOCs show acollaborative approach to planning
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

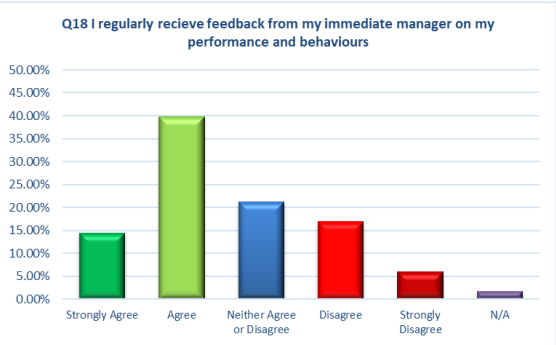

Q13 I believe my fellow planners across the contractor domain show a collaborative approach to planning
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

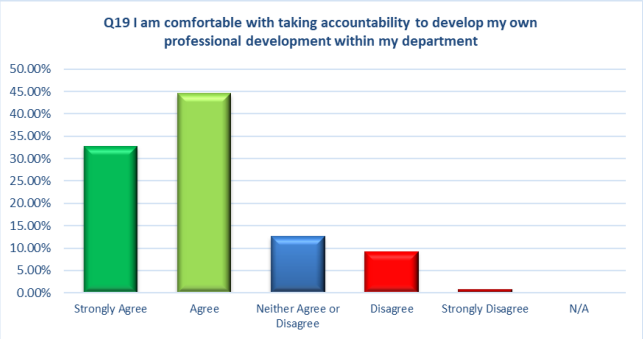

Q14 I believe my fellow planners across Network Rail show a collaborative approach to planning
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

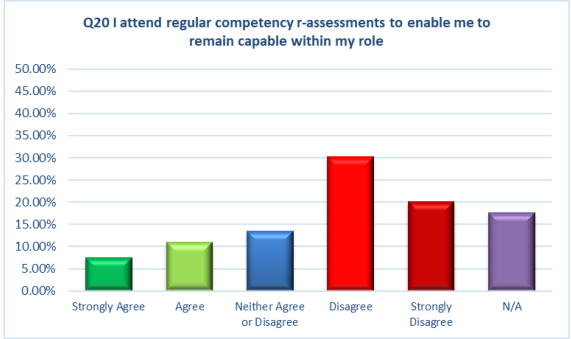

Q15 My immediate manager (1 position above) supports and understands my personal development plan
50.0%
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

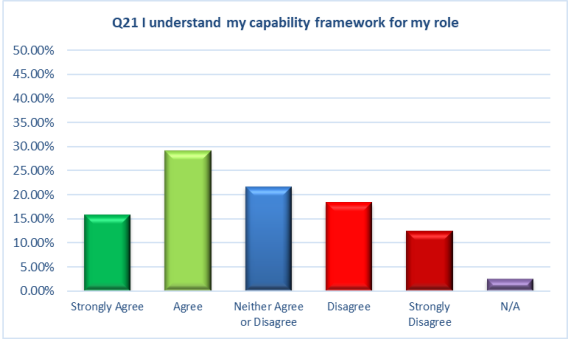

Q16 My organisation has a well defined and communicated behavioural and cultural framework
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

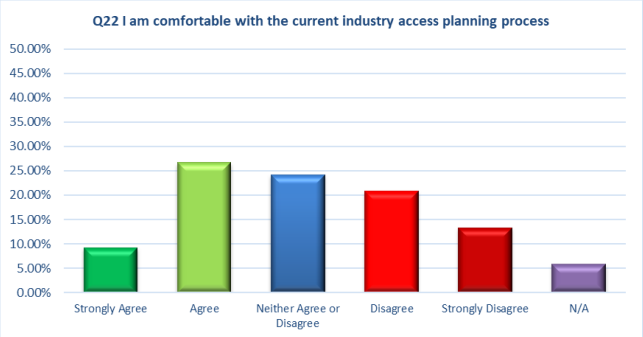

Q17 I regularly seek feedback from others I work with on my performance and behaviours
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

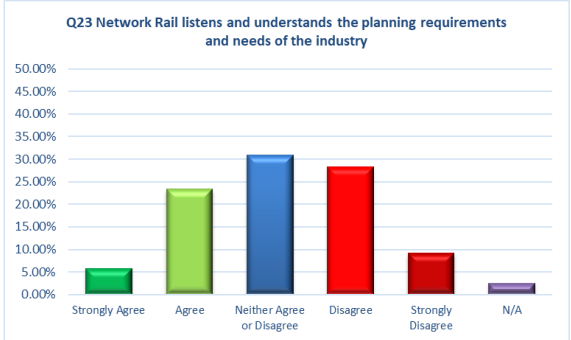

Q18 I regularly recieve feedback from my immediate manager on my performance and behaviours
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

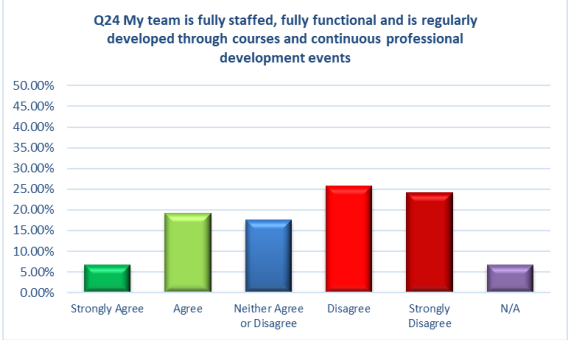

Q19 I am comfortable with taking accountability to develop my own professional development within my department
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A


Q20 I attend regular competency r-assessments to enable me to remain capable within my role
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

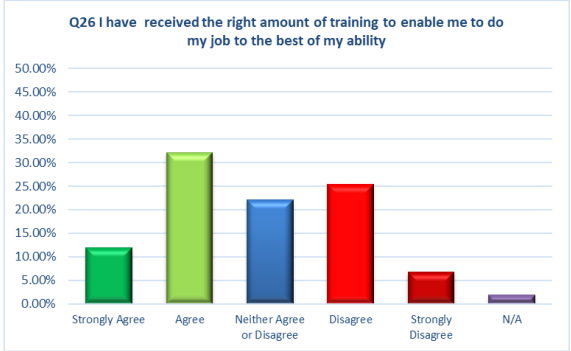

Q21 I understand my capability framework for my role
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

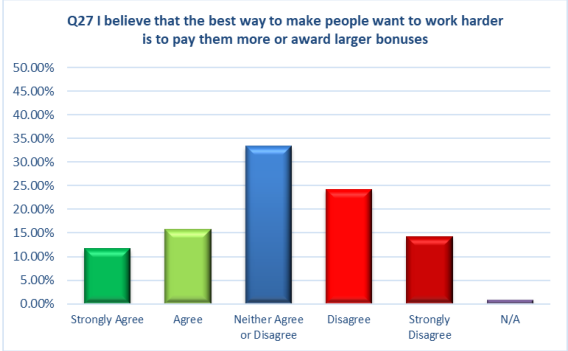

Q22 I am comfortable with the current industry access planning process
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

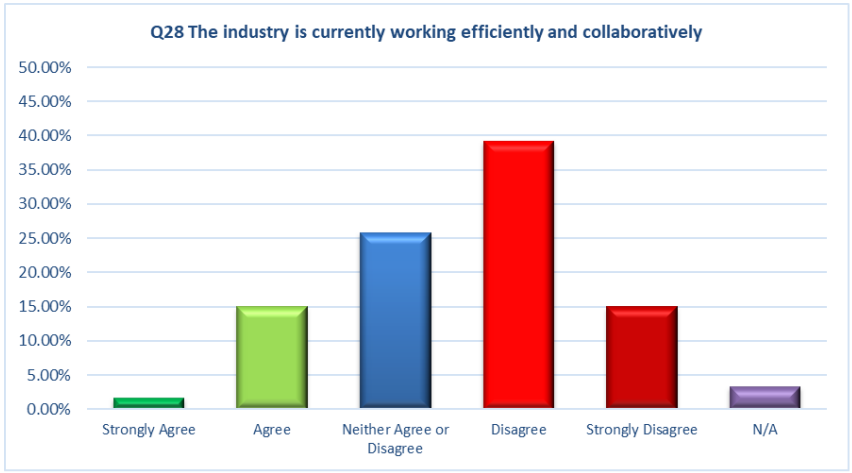

Q23 Network Rail listens and understands the planning requirements and needs of the industry
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

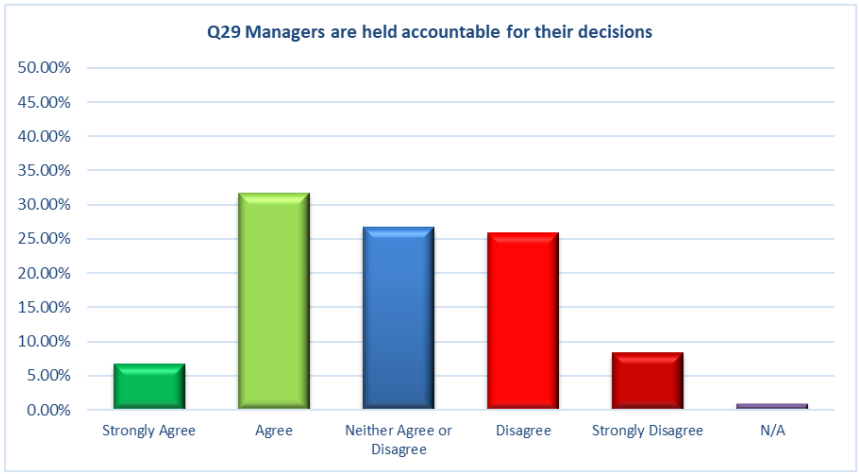

Q24 My team is fully staffed, fully functional and is regularly developed through courses and continuous professional development events
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A


Q25 I feel valued in my team
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A

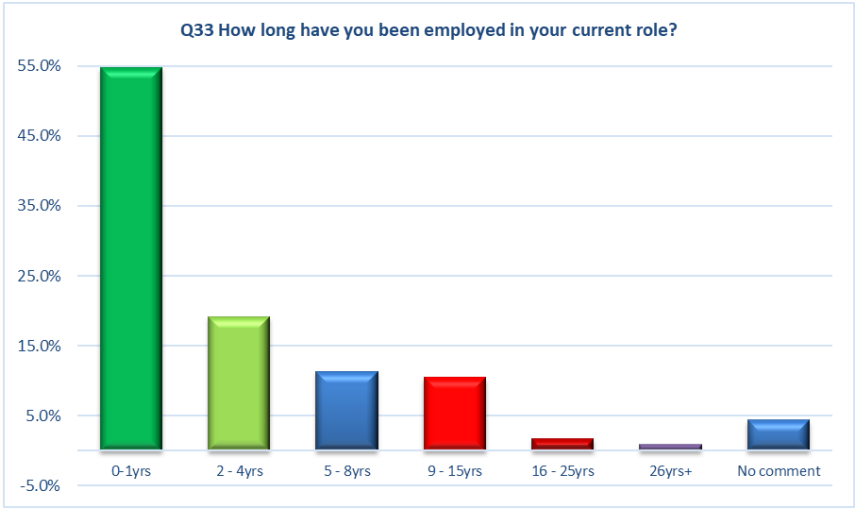

Q26 I have received the right amount of training to enable me to do my job to the best of my ability
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A


Q27 I believe that the best way to make people want to work harder is to pay them more or award larger bonuses
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A


Q28 The industry is currently working efficiently and collaboratively
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A


Q29 Managers are held accountable for their decisions
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A


Q30 I feel my manager trusts me to do my job without supervision
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Strongly Agree
Agree
Neither Agree or Disagree
Disagree
Strongly Disagree
N/A


Q33 How long have you been employed in your current role?
55.0%
45.0%
35.0%
25.0%
15.0%
5.0%
-5.0%
0-1yrs
2 - 4yrs
5 - 8yrs
9 - 15yrs
16 - 25yrs
26yrs+
No comment

ANNEX F: LIVE EXERCISE BATTLE-GROUP RESILIENCE FRAMEWORK ANALYSIS

F.1 – Battle-Group 1 Exercise 1

Area	Component	Preparation			Information and Intelligence				Command. Control and Leadership				Q1 Analysis			Q2 Analysis				Q3 Devlopment		Q4 Development	Question 5		Question 6
MoD Operational Planning Framework / McManus Framework		General Preparation	Receipt of Orders Brief	Timeline Creation	Capture and Display Information	Information Management	Information Request Management	Operational Record Keeping	Concurrent Planning Capability	Effective Decision-making	Application of Doctirne	Application of Mission Command	Battlefield and Terrain analysis	Threat Evaluation	Threat Integration	Defined strategic outcomes	Identification of Tasks	Constraints and Limitations	Regular Plan Review	Event Schematic Development	Effect Guidance Development	Effects Related to Ground - DSO development	Resource Identification	Resource Integration	Synchronisation of Effort
Degree of Situational Awareness	SA1 Roles & Responsibilities	3		3		3	2			2	2	3	1			2	2		2		1		2	3	
	SA2 Hazards & Consequences		3				2		2				1	2	2	2	2	2	2	2	1	3		3	2
	SA3 Connectivity Awareness	3			2	3	2	2						2	2	2				2				3	
	SA4 Insurance	3						2					1	2	2				2						
	SA5 Recovery Priorities			3							2	3	1			2	2			2	1	3	2	3	2
Identification and Management of Keystone Vulnerabilities	KV1 Planning			3	2		2		2	2	2	3				2			2	2	1	3	2	3	2
	KV2 Exercises		3																						
	KV3 Internal Resources	3		3	2			2	2	2		3	1	2	2	2	2		2	2	1	3	2	3	2
	KV4 External Resources		3		2			2		2			1	2	2		2							3	2
	KV5 Connectivity	3			2	3	2	2		2	2	3			2			2				3		3	
Degree of Adaptive Capacity	AC1 Silo Mentality Management			3	2	3	2		2	2		3				2			2		1	3		3	2
	AC2 Communications & Relationships	3		3	2	3	2	2	2	2	2	3	1	2	2	2		2	2	2	1	3	2	3	2
	AC3 Strategic Vision		3	3						2		3				2			2	2	1				
	AC4 Information and Knowledge	3		3	2	3	2	2	2	2	2	3	1	2	2	2	2		2	2	1	3	2	3	2
	AC5 Leadership & Management	3	3	3					2	2		3			2	2			2	2	1	3		3	

Question 7				War Game and Review				Issuing of Orders				Orders Delivery	Plan refinement			Battle Execution				
Command Measures Identified	Control Measure Identification	COA Development	COA Briefing and Selection Process	Effective Wargame Planning	Effective Plan Testing	Plan refinement and Contingency Planning	Results Recorded and Integrated	Warning Orders issued	Effective Document Development	Delivery Method Selection	Delivery Preparation	Effective Delivery	Concept Rehearsal	Post ROCC Drill procedure	Ececution preparation	Monitor	Communicate	Co-Ordinate		
2		2		2	2	2	3	3	2	3	2		3		3	2	2	2	2.28	
2	2	2	1	2	2	2		3					3			2			2.08	
	2		1		2						2	1	3			2	2	2	2.11	2.28
2	2	2			2	2			2				3	1					2.00	
2		2	1			2				3			3	1		2			2.10	
2	2	2		2		2	3	3		3	2	1	3	1	3		2	2	2.20	
				2	2	2	3						3	1					2.29	
2	2	2	1	2	2	2		3			2		3	1	3		2	2	2.26	2.23
	2												3	1	3		2	2	2.13	
	2	2			2		3	3			2	1	3	1	3		2	2	2.29	
2	2	2	1		2	2	3			3	2		3		3	2	2	2	2.26	
	2	2	1	2	2		3	3	2		2	1	3	1	3	2	2		2.14	
		2	1										3					2	2.17	2.19
	2		1	2		2	3	3	2		2	1	3	1	3		2		2.14	
	2	2	1		2	2		3			2	1	3		3			2	2.25	

F.2 – Battle-Group 1 Exercise 2

Area	Component	Preparation			Information and Intelligence				Command. Control and Leadership				Q1 Analysis			Q2 Analysis				Q3 Devlopment		Q4 Development	Question 5		Question 6
MoD Operational Planning Framework / McManus Framework		General Preparation	Receipt of Orders Brief	Timeline Creation	Capture and Display Information	Information Management	Information Request Management	Operational Record Keeping	Concurrent Planning Capability	Effective Decision-making	Application of Doctrine	Application of Mission Command	Battlefield and Terrain analysis	Threat Evaluation	Threat Integration	Defined strategic outcomes	Identification of Tasks	Constraints and Limitations	Regular Plan Review	Event Schematic Development	Effect Guidance Development	Effects Related to Ground - DSO development	Resource Identification	Resource Integration	Synchronisation of Effort
Degree of Situational Awareness	SA1 Roles & Responsibilities	3		2		2	3			3	3	3	2			3	3		3		3		2	4	
	SA2 Hazards & Consequences		3				3						2	2	3	3	3	3	3	3	3	2		4	3
	SA3 Connectivity Awareness	3			3	2	3	3						2	3	3				3				4	
	SA4 Insurance	3						3					2	2	3				3						
	SA5 Recovery Priorities			2							3	3	2			3	3			3	3	2	2	4	3
Identification and Management of Keystone Vulnerabilities	KV1 Planning			2	3		3			3	3	3				3			3	3	3	2	2	4	3
	KV2 Exercises		3																						
	KV3 Internal Resources	3		2	3			3		3		3	2	2	3	3	3		3	3	3	2	2	4	3
	KV4 External Resources		3		3			3		3			2	2	3		3							4	3
	KV5 Connectivity	3			3	2	3	3		3	3	3			3			3				2		4	
Degree of Adaptive Capacity	AC1 Silo Mentality Management			2	3	2	3			3		3				3			3		3	2		4	3
	AC2 Communications & Relationships	3		2	3	2	3	3		3	3	3	2	2	3	3		3	3	3	3	2	2	4	3
	AC3 Strategic Vision		3	2						3		3				3			3	3	3				
	AC4 Information and Knowledge	3		2	3	2	3	3		3	3	3	2	2	3	3	3		3	3	3	2	2	4	3
	AC5 Leadership & Management	3	3	2						3		3			3	3			3	3	3	2		4	

Question 7				War Game and Review				Issuing of Orders				Orders Delivery	Plan refinement			Battle Execution					
Command Measures Identified	Control Measure Identification	COA Development	COA Briefing and Selection Process	Effective Wargame Planning	Effective Plan Testing	Plan refinement and Contingency Planning	Results Recorded and Integrated	Warning Orders issued	Effective Document Development	Delivery Method Selection	Delivery Preparation	Effective Delivery	Concept Rehearsal	Post ROCC Drill procedure	Ececution preparation	Monitor	Communicate	Co-Ordinate			
3		2		3	4	3	2	3	3	3	4		3						2.88		
3	2	2	2	3	4	3		3					3						2.83		
	2		2		4						4	3	3						2.94	2.88	
3	2	2			4	3			3				3						2.77		
3		2	2			3				3			3						2.72		
3	2	2		3		3	2	3		3	4	3	3						2.84		
				3	4	3	2						3						3.00		
3	2	2	2	3	4	3		3			4		3						2.82	2.88	
	2												3						2.83		
	2	2			4		2	3			4	3	3						2.90		
3	2	2	2		4	3	2			3	4		3						2.82		
	2	2	2	3	4		2	3	3		4	3	3						2.78		
		2	2										3						2.73	2.80	
	2		2	3		3	2	3	3		4	3	3						2.77		
	2	2	2		4	3		3			4	3	3						2.90		

F.3 – Battle-Group 2 Exercise 1

Area	Component	Preparation			Information and Intelligence				Command. Control and Leadership				Q1 Analysis			Q2 Analysis				Q3 Devlopment		Q4 Development	Question 5		Question 6
MoD Operational Planning Framework / McManus Framework		General Preparation	Receipt of Orders Brief	Timeline Creation	Capture and Display Information	Information Management	Information Request Management	Operational Record Keeping	Concurrent Planning Capability	Effective Decision-making	Application of Doctrine	Application of Mission Command	Battlefield and Terrain analysis	Threat Evaluation	Threat Integration	Defined strategic outcomes	Identification of Tasks	Constraints and Limitations	Regular Plan Review	Event Schematic Development	Effect Guidance Development	Effects Related to Ground - DSO development	Resource Identification	Resource Integration	Synchronisation of Effort
Degree of Situational Awareness	SA1 Roles & Responsibilities	2		3		2	3			2	3	3	2			3	2		2		2		1	3	
	SA2 Hazards & Consequences		3				3		2				2	2	2	3	2	2	2	2	2	2		3	2
	SA3 Connectivity Awareness	2			2	2	3	2						2	2	3				2				3	
	SA4 Insurance	2						2					2	2	2				2						
	SA5 Recovery Priorities			3							3	3	2			3	2			2	2	2	1	3	2
Identification and Management of Keystone Vulnerabilities	KV1 Planning			3	2		3		2	2	3	3				3			2	2	2	2	1	3	2
	KV2 Exercises		3																						
	KV3 Internal Resources	2		3	2			2	2	2		3	2	2	2	3	2		2	2	2	2	1	3	2
	KV4 External Resources		3		2			2		2			2	2	2		2							3	2
	KV5 Connectivity	2			2	2	3	2		2	3	3			2			2				2		3	
Degree of Adaptive Capacity	AC1 Silo Mentality Management			3	2	2	3		2	2		3				3			2		2	2		3	2
	AC2 Communications & Relationships	2		3	2	2	3	2	2	2	3	3	2	2	2	3		2	2	2	2	2	1	3	2
	AC3 Strategic Vision		3	3						2		3				3			2	2	2				
	AC4 Information and Knowledge	2		3	2	2	3	2	2	2	3	3	2	2	2	3	2		2	2	2	2	1	3	2
	AC5 Leadership & Management	2	3	3					2	2		3			2	3			2	2	2	2		3	

Question 7				War Game and Review				Issuing of Orders				Orders Delivery	Plan refinement			Battle Execution					
Command Measures Identified	Control Measure Identification	COA Development	COA Briefing and Selection Process	Effective Wargame Planning	Effective Plan Testing	Plan refinement and Contingency Planning	Results Recorded and Integrated	Warning Orders issued	Effective Document Development	Delivery Method Selection	Delivery Preparation	Effective Delivery	Concept Rehearsal	Post ROCC Drill procedure	Ececution preparation	Monitor	Communicate	Co-Ordinate			
2		2		2	2	3	2	3	3	3	3		3		3	2	2	2	2.41	2.41	
2	3	2	1	2	2	3		3					3			2			2.28		
	3		1		2						3	2	3			2	2	2	2.26		
2	3	2			2	3			3				3	2					2.29		
2		2	1			3				3			3	2		2			2.30		
2	3	2		2		3	2	3		3	3	2	3	2	3		2	2	2.40	2.38	
				2	2	3	2						3	2					2.43		
2	3	2	1	2	2	3		3			3		3	2	3		2	2	2.39		
	3												3	2	3		2	2	2.31		
	3	2			2		2	3			3	2	3	2	3		2	2	2.38		
2	3	2	1		2	3	2			3	3		3		3	2	2	2	2.37	2.34	
	3	2	1	2	2		2	3	3		3	2	3	2	3	2	2		2.27		
		2	1										3					2	2.33		
	3		1	2		3	2	3	3		3	2	3	2	3		2		2.31		
	3	2	1		2	3		3			3	2	3		3			2	2.42		

F.4 – Battle-Group 2 Exercise 2

Area	Component	Preparation			Information and Intelligence				Command. Control and Leadership				Q1 Analysis			Q2 Analysis				Q3 Devlopment		Q4 Development	Question 5		Question 6
MoD Operational Planning Framework / McManus Framework		General Preparation	Receipt of Orders Brief	Timeline Creation	Capture and Display Information	Information Management	Information Request Management	Operational Record Keeping	Concurrent Planning Capability	Effective Decision-making	Application of Doctrine	Application of Mission Command	Battlefield and Terrain analysis	Threat Evaluation	Threat Integration	Defined strategic outcomes	Identification of Tasks	Constraints and Limitations	Regular Plan Review	Event Schematic Development	Effect Guidance Development	Effects Related to Ground - DSO development	Resource Identification	Resource Integration	Synchronisation of Effort
Degree of Situational Awareness	SA1 Roles & Responsibilities	3		4		2	2			3	3	3	3			3	3		3		3		2	3	
	SA2 Hazards & Consequences		4				2		3				3	3	3	3	3	3	3	4	3	3		3	4
	SA3 Connectivity Awareness	3			2	2	2	3						3	3	3				4				3	
	SA4 Insurance	3						3					3	3	3				3						
	SA5 Recovery Priorities			4							3	3	3			3	3			4	3	3	2	3	4
Identification and Management of Keystone Vulnerabilities	KV1 Planning			4	2		2		3	3	3	3				3			3	4	3	3	2	3	4
	KV2 Exercises		4																						
	KV3 Internal Resources	3		4	2			3	3	3		3	3	3	3	3	3		3	4	3	3	2	3	4
	KV4 External Resources		4		2			3		3			3	3	3		3							3	4
	KV5 Connectivity	3			2	2	2	3		3	3	3			3			3				3		3	
Degree of Adaptive Capacity	AC1 Silo Mentality Management			4	2	2	2		3	3		3				3			3		3	3		3	4
	AC2 Communications & Relationships	3		4	2	2	2	3	3	3	3	3	3	3	3	3		3	3	4	3	3	2	3	4
	AC3 Strategic Vision		4	4						3		3				3			3	4	3				
	AC4 Information and Knowledge	3		4	2	2	2	3	3	3	3	3	3	3	3	3	3		3	4	3	3	2	3	4
	AC5 Leadership & Management	3	4	4					3	3		3			3	3			3	4	3	3		3	

Question 7				War Game and Review				Issuing of Orders				Orders Delivery	Plan refinement			Battle Execution					
Command Measures Identified	Control Measure Identification	COA Development	COA Briefing and Selection Process	Effective Wargame Planning	Effective Plan Testing	Plan refinement and Contingency Planning	Results Recorded and Integrated	Warning Orders issued	Effective Document Development	Dellvery Method Selection	Delivery Preparation	Effective Delivery	Concept Rehearsal	Post ROCC Drill procedure	Ececution preparation	Monitor	Communicate	Co-Ordinate			
4		4		3	3	4	3	3	4	3	3		3						3.08		
4	4	4	4	3	3	4		3					3						3.29		
	4		4		3						3	3	3						3.00	3.08	
4	4	4			3	4			4				3						3.38		
4		4	4			4				3			3						3.33		
4	4	4		3		4	3	3		3	3	3	3						3.15		
				3	3	4	3						3						3.33		
4	4	4	4	3	3	4		3			3		3						3.44	3.21	
	4												3						3.17		
	4	4			3		3	3			3	3	3						2.95		
4	4	4	4		3	4	3			3	3		3						3.17		
	4	4	4	3	3		3	3	4		3	3	3						3.09		
		4	4										3						3.45	3.23	
	4		4	3		4	3	3	4		3	3	3						3.09		
	4	4	4		3	4		3			3	3	3						3.32		

ANNEX G: EXAMPLE OF THE ORGANISATIONAL RESILIENCE MANAGEMENT MATURITY MATRIX FRAMEWORK

G1.1 – Holistic Framework for the Strategic Core Workstream

Due to the detail in this image, this is best viewed in A3 (if printed) or at 300% (if viewed electronically). This is due to it being part of a larger framework used to deliver the ORM3 database.

			Maturity State Descriptor	Stage 5 (Optimising - Processes / activities are optimised, with strong leadership and guidance across the organisation. Departments are implementing best practice and may be regarded as industry sector leads, exporting guidance and direction.	Stage 4 (Predictable - Processes / Activities embedded across the organisation. Processes / activities communicated and well managed at all levels)	Stage 3 (Established - Processes established and present within teams. Processes / activities well used and documented at local level. Management team have set policy and direction.	Stage 2 (Managed - Simple processes at local / individual level, with isolated learning and consolidation)	Stage 1 (Basic - Processes in place but not established)	Stage 0 (Processes not evident)
			Operating level	Industry	Organisation	Function	Localised	Ad-hoc	Non-existent
Strategic Element	CO1	Business Vision	This element is identified through how well the vision is briefed and understood by the members of the organisation. This can then be tested through how well company and department objectives align to the delivery of the strategic vision. Another indicator is how engaged the staff feel with the strategic vision. Corporate vision is aligned to industry and government strategy, with achievable objectives clearly mapped out to enable the vision to be delivered. The Corporate vision is also linked to organisational cultural framework, social responsibility and presented through business literature, frameworks and activities.	Strategic vision clearly briefed and understood across the company and is also recognised by external agencies. Vision statement integrated into business publications, with programme and project activities and objectives mapped against the delivery of key outcomes, which in turn are mapped against the vision. All critical activity is mapped to the delivery of the end-state. Personal objectives are mapped against critical success factors and how they support the achievement of the strategic vision.	The strategic vision is embedded across the organisation at all levels, with programmes, projects and activities aligned to achieve the relevant critical success factors. Business publications promote the vision, with it clearly understood and bought into at all levels within the organisation. Policy and strategy documents are clearly aligned to the achievement of the corporate vision, with personnel conducting activities that align with the relevant policy or strategy. Performance measurements are aimed at achieving the corporate vision and are regularly reviewed.	Strategic vision and supporting strategies and policies are in place and well communicated across the senior leadership and management domains of the organisation. Strategic objectives for the development and embedding of resilience are established, with specific measurements aligned against them. Organisational activities are mapped to critical success factors, though the frameworks are not established at the lower levels of the organisation. Programme, project or personal objectives are not mapped to the strategic objectives or the organisational vision.	Limited level of awareness of the strategic vision within the workforce and how their efforts and work contribute to the delivery of the vision. While personal and team objectives process is formalised, they display little or no alignment to the vision.	Although corporate vision exists, no awareness of it at team level, or how team and departmental activities align to its delivery. Few objectives set across the teams and personal performance reviews not formalised, with no alignment to the corporate objectives.	No evidence displayed that the element is being utilised or systems are in place to support the element framework
	CO2	Organisational Culture	This element analyses the level of maturity that the organisation has when it comes to it cultural approach. A high performing organisation would aim to develop an open and culturally diverse approach to the workplace, supporting personnel from numerous faiths and backgrounds. There would be a drive to build an inclusive and just culture, where individuals feel safe to work, free from harassment and blame. A just culture will also a safety focussed approach, with individuals comfortable to raise concerns, issues or events and seek to address and learn from them. As an organisation, there is an embedded values and standards framework, which complement the industry and government frameworks. There is also a strong presence of Corporate Social Responsibility, building the organisation's reputation as a fair, just and supportive member of the community. Within the organisation there is a culture of learning, with best practice seen as the normal standard to seek to achieve, while the industry looks to the organisation as a benchmark.	Clearly identifiable leadership frameworks, with an inclusive and adaptive culture. Organisation operates within a networked approach, with business elements empowered to function independently. A light touch from the leadership team, with values, standards, policies and direction clearly given and understood. Business functions clearly mapped to ISO or BS frameworks. Also, a strong presence of a learning culture. Collaborative multi-agency / department operations are the normal way of business, with the organisation mentoring others and exporting skills / guidance / best practice across the industry sector.	Policies and cultural activities embedded across the organisation, with key activities directed at the promotion of key drivers and motivation behind the drivers. Focus within the organisation is the development of a collaborative approach, embedding engagement, direction and strategic objectives into outcome focussed activities. Successful application of Lean processes and a strong focus on effective management and succession planning across all teams and departments.	Policies in place and in use within elements of the business. Evidence of communication across some areas of the business. Strategic priorities for cultural development identified and agreed by the leadership team. Key goals and strategy in place to enable the development of the required organisational culture. Cultural approach across the organisational is functional, based on achieving key milestones / objectives within defined areas.	Limited level of alignment to government and organisational standards. Few policy documents present. Strategy is not properly aligned to policy documents. Staff leadership programmes not maximised and managerial posts not properly invested in. Limited awareness of multi-agency or collaborative cross-industry operations. Organisational response to culture issues is very reactive.	Organisational policy in place, though not widely known / read within the department. No formal communication evidenced across the organisation, with minimal collaboration at the local team level. No awareness of multi-agency working or benefits of such activity. Cultural is very insular and almost tribal amongst teams, with a reactive nature to disruptive events.	No evidence displayed that the element is being utilised or systems are in place to support the element framework. Poor cultural understanding of diversity, with a lack of goals and policy.
	CO3	Adaptive Leadership Framework	This element examines the leadership framework and the ability of the organisation to develop and sustain its strategy. Within the area there is the analysis of policy and strategy documents to analyse the level of direction within the organisation. This also looks at the type of leadership framework, whether it is heavily devolved, with flat hierarchies, or hierarchical, with pillars of command and control. Leadership training and education programmes, staff development packages, regular leadership table top discussions and a multi-agency response understanding to promote the organisation as a leader within its industry setting. This element also analyses the depth of leadership capability across the organisation, and whether it is confined to a few key decision-makers, or there is a level of devolved leadership, providing an agile element to the decision-making within the organisation.	There is strong evidence of a thorough understanding of strategic leadership, demonstrated through policy and strategy documents, which are clearly linked to department and function objectives. The leadership framework is adaptive to the situation, as well as junior managers being empowered. A strong leadership development culture is in place, with informal leaders being identified and supported at all levels. Individuals display strong change management, critical thinking and passion for developing their teams. They promote authentic leadership methods and are highly influential through the inspiring of others to achieve.	There is evidence of transformational leadership activities across the organisation, with leadership members promoting the active development and empowerment of junior managers. Individuals in leadership roles, at all levels, demonstrate critical thinking and analysis skills, and have in place clear succession plans for their team / department. They are results based and are unafraid to delegate responsibility while retaining accountability for delivery of activities. There is a culture of adaptive leadership within the senior members, promoting lateral thinking and effective change management.	Evidence of transactional leadership activity within teams and departments, with clear objectives and guidance set. Evidence of staff development within leadership skills at the higher levels of management, but little evidence within the lower tiers. Key individuals within the department are provided with the correct level of support to develop their skill sets within critical thinking, communication skills and people management. Individuals demonstrate the ability to think at the tactical level, understanding the importance of longer-term planning and decision making, though leadership style is still transactional.	Limited levels of delegation and direction given to team. Individuals seeks to maintain an authoritarian approach to leadership, unwilling to delegate. Little or no trust given to subordinates. Newly promoted people managers receive localised training and some support, with mentors available. Organisation still has an autocratic leadership style embedded.	Though there is direction on leadership expectation and management, few individuals in leadership roles have received formalised training for the role. Organisation suffers several grievances due to poor leadership at all levels. Organisation places technical experts into staff management roles without correct development frameworks. High turnover of staff present, with an autocratic style of leadership present.	No evidence displayed that the element is being utilised or systems are in place to support the element framework

G1.2 – Framework for the Vision Component of the Strategic Core Workstream

Due to the detail in this image, this is best viewed in A3 (if printed) or at 150% (if viewed electronically). This is due to it being part of a larger framework used to deliver the ORM3 database.

Code	CO1		Domain	Strategic Element	Factor	Business Vision
Descriptor	This element is identified through how well the vision is briefed and understood by the members of the organisation. This can then be tested through how well company and department objectives align to the delivery of the strategic vision. Another indicator is how engaged the staff feel with the strategic vision. Corporate vision is aligned to industry and government strategy, with achievable objectives clearly mapped out to enable the vision to be delivered. The Corporate vision is also linked to organisational cultural framework, social responsibility and presented through business literature, frameworks and activities.					
Level	**Industry**	**Organisation**	**Function**	**Localised**	**Ad-hoc**	**Non-existent**
Activity	Strategic vision clearly briefed and understood across the company and is also recognised by external agencies. Vision statement integrated into business publications, with programme and project activities and objectives mapped against the delivery of key outcomes, which in turn are mapped against the vision. All critical activity is mapped to the delivery of the end-state. Personal objectives are mapped against critical success factors and how they support the achievement of the strategic vision.	The strategic vision is embedded across the organisation at all levels, with programmes, projects and activities aligned to achieve the relevant critical success factors. Business publications promote the vision, with it clearly understood and bought into at all levels within the organisation. Policy and strategy documents are clearly aligned to the achievement of the corporate vision, with personnel conducting activities that align with the relevant policy or strategy. Performance measurements are aimed at achieving the corporate vision and are regularly reviewed.	Strategic vision and supporting strategies and policies are in place and well communicated across the senior leadership and management domains of the organisation. Strategic objectives for the development and embedding of resilience are established, with specific measurements aligned against them. Organisational activities are mapped to critical success factors, though the frameworks are not established at the lower levels of the organisation. Programme, project or personal objectives are not mapped to the strategic objectives or the organisational vision.	Limited level of awareness of the strategic vision within the workforce and how their efforts and work contribute to the delivery of the vision. While personal and team objectives process is formalised, they display little or no alignment to the vision.	Although corporate vision exists, no awareness of it at team level, or how team and departmental activities align to its delivery. Few objectives set across the teams and personal performance reviews not formalised, with no alignment to the corporate objectives.	No evidence displayed that the element is being utilised or systems are in place to support the element framework
Behaviours	The organisation has a well developed inclusive culture that seeks to promote learning, capability and tolerance across all leveels of the organisation. Staff and stakeholders are part of the organisational framework, with their views welcomed and used to improve the organisation. The organisation is recognised as an example of cultural best practice and is forward in sharing continuous improvement options for the better of the industry. Alternatively, the organisation may be so culturally powerful that its influence and practices, whether good or bad, may permeate across the industry, slowly changing the industry approach. If detrimental, then this could lead to cultural clashes and discord within the industry,	Organisation has a strong identity within the industry, with staff feeling a strong connection and identity with the organisation. Many individuals will have "joined for life" because of the culture, with a low turnover of staff leaving. Promotes a Just and Questioning culture to build best practice. Across the industry, practices may be copied, with the organisation being seen as the benchmark. Alternatively, because of a strong culture, the organisation may be in direct competition with other industry members, unwilling to share practices and methods, creating discord. There may be a staff drain from other organisations towards this one. Other industry members may seek to collaborate to force change onto the organisation.	Across the function / department there is a strong sense of identity and belonging. Teams work towards a single goal, with a vision and purpose evident in their approach. Individuals feel they "belong" to the department / function, rather than the organisation. May witness a cultural clash between the function / department and the organisation, especially when goals are different. Often witness a strong personality as the Head of Function / Department, who has their own methods of delivery. Can result in isolation and combatative working environment.	Across the organisation there are examples of empowerment and acceptance of diversity, but these are localised and not exploited for the better of the wider organisation. Signs and elements of a resilience and learning culture within departments / functions. May witness clashes of sub-cultures, focussed on team / individuals identities, with limited pesence of a Just, Questioning or Collaborative culture.	Culture is rarely consicerd within the development of organisational policy and activities. Staff feel "done to" rather than "done with." In some areas there may be competing sub-cultures, resulting in poor operating practices and procedures.	Apathetic Hostile environment to non-organisation personnel
Evidence	Cross industry cultural framework embedded and communicated. Company policy in place to encourage personnel to promote diverse cultures across industry. Multiple cultural groups supported through activities, communications, staff time and financial means. Regular engagement between industry cultural groups and organisation. Bespoke team in place to manage cultural frameworks.	Company personnel encouraged to promote diverse cultures across industry. Multiple cultural groups supported through activities, communications, staff time and financial means. Cross-organisation guidelines and framework in place to support cultural groups. Personnel support managed through wider HR policies and teams. Cultural events / policy implementation part of the KPI structure	Company policy in place to promote cultural awareness. Staff internal support networks in place Function area supports staff doing localisd events to promote an inclusive culture. Record held of events and feedback from staff. Cultural events (training, outside events) captured as part of individual CPD.	Policy document in place and communicated across the organisation Teams / individuls conducting cultural briefings within their teams Localised team events to build awareness	No centralised guidance on developing and maintaining an inclusive culture. Little in the way of documentation or staff support. Individual events occurring, organised by individuals with no obvious backing from organisation.	No evidence present

G 1.3 – The Organisational Resilience Management Maturity Matrix Framework (High Level)

Strategic Core										
CO1	Business Vision									
CO2	Organisational Culture									
CO3	Adaptive Leadership Framework									
Business Assurance		**Business Agility**		**Business Planning**		**Business Governance and Structure**		**Business Skills & Development**		
AS1	Insurance	AG1	Hazards and consequences	PL1	Business Intelligence frameworks	ST1	Roles and responsibilities	SD1	Staff engagement and involvement	
AS2	Internal and external situation monitoring and reporting	AG2	Connectivity awareness	PL2	External Connectivity	ST2	Internal resources	SD2	Communications and relationships	
AS3	Risk management and planning	AG3	Corporate security frameworks	PL3	Long term performance planning requirements	ST3	External resources	SD3	Research, innovation and creativity	
AS4	Robust processes for identifying and analysing vulnerabilities	AG4	Adaptive decision making	PL4	Information and knowledge collection frameworks	ST4	Silo mentality management	SD4	Continuous improvement frameworks	
AS5	Recovery priorities	AG5	Exercising	PL5	Operatiing and licencing frameworks	ST5	Corporate Social Responsibility	SD5	Staff talent and succession planning frameworks	